EAST TOWN CROSSING PHASE 1

SEC. 26,35/ TWP. 20 N./ RGE. 4 E., W.M.

SURVEYOR

ABBEY ROAD GROUP
CONTACT: LARRY WALKER
PO BOX 1224
PUYALLUP, WA 98371
OFFICE: 253-435-3699

ARCHITECT

SYNTHESIS 9, LLC
CONTACT: BRETT LINDSAY
523 N. D. ST
TACOMA, WA 98403
OFFICE: 253-468-4117

CIVIL ENGINEER

AHBL INC.
2215 NORTH 30TH STREET, SUITE 300
TACOMA, WA 98403
PHONE: (253) 383-2422
CONTACT: TODD SAWIN
EMAIL: TSAWIN@AHBL.COM

SITE INFORMATION

PARCEL: 0420264021, 0420264054, 0420264053, 0420351066, 0420351030, 0420351029, 0420351026
ADDRESS: 2902 E PIONEER
PUYALLUP, WA 98372
ZONING: CG AND RM-20

SURVEYOR'S NOTES

1. HORIZONTAL DATUM: BASIS OF BEARING AND SURVEY DATA PER WASHINGTON STATE PLANE COORDINATE SYSTEM, SOUTH ZONE.

2. BASIS OF BEARING: HELD S 01° 21' 28" W OBSERVED ALONG THE EAST LINE OF THE NORTHEAST QUARTER OF SEC. 35, T. 20 N. R. 4 E. BETWEEN THE NORTHEAST CORNER OF THE NORTHEAST QUARTER MONUMENT AND THE SOUTHEAST CORNER OF THE NORTHEAST QUARTER MONUMENT OF THE SAID SECTION AS SHOWN HEREON.

3. VERTICAL DATUM: NAVD88
AS DEFINED BY THE NATIONAL GEODETIC SURVEY (NGS)
PROJECT BENCHMARK:
DESIGNATION: 21 010
PID: DL2774

PUBLISHED ELEVATION: 75.70 FEET (NAVD 88)
DESCRIPTION: ENCASED STEEL ROD LOCATED IN EASTERLY GRAVEL SHOULDER AT THE INTERSECTION OF PIONEER WAY AND 134TH AVE. E.

4. ALL UTILITY LOCATES HAVE BEEN DETERMINED BY SURFACE LOCATION ONLY EITHER BY PHYSICAL STRUCTURES OR PAINT MARKINGS
AS DETERMINED BY UNDERGROUND + UTILITY LOCATE, INC. AND/OR UTILITY COMPANY. GAS PIPE LOCATION WITH IN THE PROPERTY
DETERMINED BY MAP PROVIDE BY PUGET SOUND ENERGY, INC. ACTUAL UNDERGROUND LOCATION MAY VARY. EXISTING UTILITIES AS
SHOWN MAY NOT BE THE SAME AFTER THIS DATE AS MAJOR CONSTRUCTION IS IN PROGRESS.

5. REFERENCE SURVEYS:
   1. 200303315001
   2. SP 9303315001
   3. ROS 8210040207

6. METHOD OF SURVEYING WAS:
   1. CONVENTIONAL TRAVERSE USING A TOPCON 800A TOTAL STATION.
   2. MONUMENTS FOUND MARCH 2008

TOPOGRAPHIC NOTE

THE EXISTING CULTURAL AND TOPOGRAPHICAL DATA SHOWN ON THESE DRAWINGS HAS BEEN PREPARED, IN PART, BASED UPON INFORMATION FURNISHED BY OTHERS. WHILE THIS INFORMATION IS BELIEVED TO BE RELIABLE, AHBL ENGINEERING CANNOT ENSURE ACCURACY AND THUS IS NOT RESPONSIBLE FOR THE ACCURACY OF THAT INFORMATION OR FOR ANY ERRORS OR OMISSIONS WHICH MAY HAVE BEEN INCORPORATED INTO THESE DRAWINGS AS A RESULT.

FILL SPECIFICATIONS

FILL MATERIAL SHALL NOT CONTAIN PETROLEUM PRODUCTS, OR SUBSTANCES WHICH ARE HAZARDOUS, DANGEROUS, TOXIC, OR WHICH OTHERWISE VIOLATE ANY STATE, FEDERAL. OR LOCAL LAW, ORDINANCE, CODE, REGULATION, RULE, ORDER, OR STANDARD.

FIRE SPRINKLER NOTE

FIRE LINE SHALL BE SIZED BY A LICENSED FIRE PROTECTION ENGINEER. A SEPARATE, DETAILED PLAN SHALL BE APPROVED BY THE FIRE MARSHALL AND INSTALLED BY A WASHINGTON CERTIFIED LEVEL "U" CONTRACTOR IN ACCORDANCE WITH WAC 212-80-010. A POST INDICATOR VALVE SHALL BE INSTALLED ON THE SPRINKLER LINE TO ISOLATE THE FIRE SYSTEM FROM THE WATER SYSTEM WHEN REQUIRED.

VERIFICATION NOTE

ALL EXISTING UTILITIES IN THE CONSTRUCTION AREA SHALL BE IDENTIFIED AND VERIFIED FOR DEPTH AND LOCATION PRIOR TO ANY CONSTRUCTION ACTIVITIES SO TO IDENTIFY ANY POTENTIAL CONFLICTS WITH PROPOSED CONSTRICTION. CONTACT PROJECT ENGINEER IMMEDIATELY IF ANY CONFLICTS ARE IDENTIFIED.

PRIOR TO ANY CONSTRUCTION ACTIVITIES, VERIFY EXISTING TOPOGRAPHY IS CONSISTENT WITH WHAT IS SHOWN ON PLANS AND IF THERE ARE ANY POTENTIAL CONFLICTS WITH PROPOSED CONSTRUCTION ACTIVITIES. CONTACT PROJECT ENGINEER IMMEDIATELY IF ANY CONFLICTS ARE IDENTIFIED.

TRENCH NOTES

IF WORKERS ENTER ANY TRENCH OR OTHER EXCAVATION FOUR OR MORE FEET IN DEPTH THAT DOES NOT MEET THE OPEN PIT REQUIREMENTS OF WSDOT SECTION 2-09 .3(3)8, IT SHALL BE SHORED AND CRIBBED. THE CONTRACTOR IS ALONE RESPONSIBLE FOR WORKER SAFETY. ALL TRENCH SAFETY SYSTEMS SHALL MEET THE REQUIREMENTS OF THE WASHINGTON INDUSTRIAL SAFETY AND HEALTH ACT, CHAPTER 49.17 RCW.

CONSTRUCTION SEQUENCE

1. OBTAIN REQUIRED PERMITS AND HOLD A PRE-CONSTRUCTION MEETING WITH THE CITY
2. FLAG CLEARING LIMITS
3. INSTALL OR REPLACE SILT FENCE
4. INSTALL CONSTRUCTION ENTRANCE
5. POTHOLE ANY EXISTING UTILITIES FOR VERIFICATION OF DEPTH AND LOCATION. SEE VERIFICATION NOTE
6. SCHEDULE EROSION CONTROL INSPECTION W/ CITY
7. GRADE SITE
8. MAINTAIN EROSION CONTROL MEASURE AND RELOCATE SURFACEWATER CONTROLS AS NEEDED IN ACCORDANCE WITH CITY OF PUYALLUP REQUIREMENTS AND NPDES CONSTRUCTION STORMWATER GENERAL PERMIT
9. COVER ALL AREAS THAT WILL BE UNWORKED FOR MORE THAN FIVE DAYS DURING THE DRY SEASON OR TWO DAYS DURING THE WET SEASON
10. STABILIZE ALL AREAS WITHIN SEVEN DAYS OF REACHING FINAL GRADE
11. INSTALL RTANKS
12. STABILIZE ALL DISTURBED AREAS AND REMOVE BMP'S AND EROSION CONTROL MEASURES AS APPROPRIATE
13. ARRANGE FINAL INSPECTION WITH THE CITY

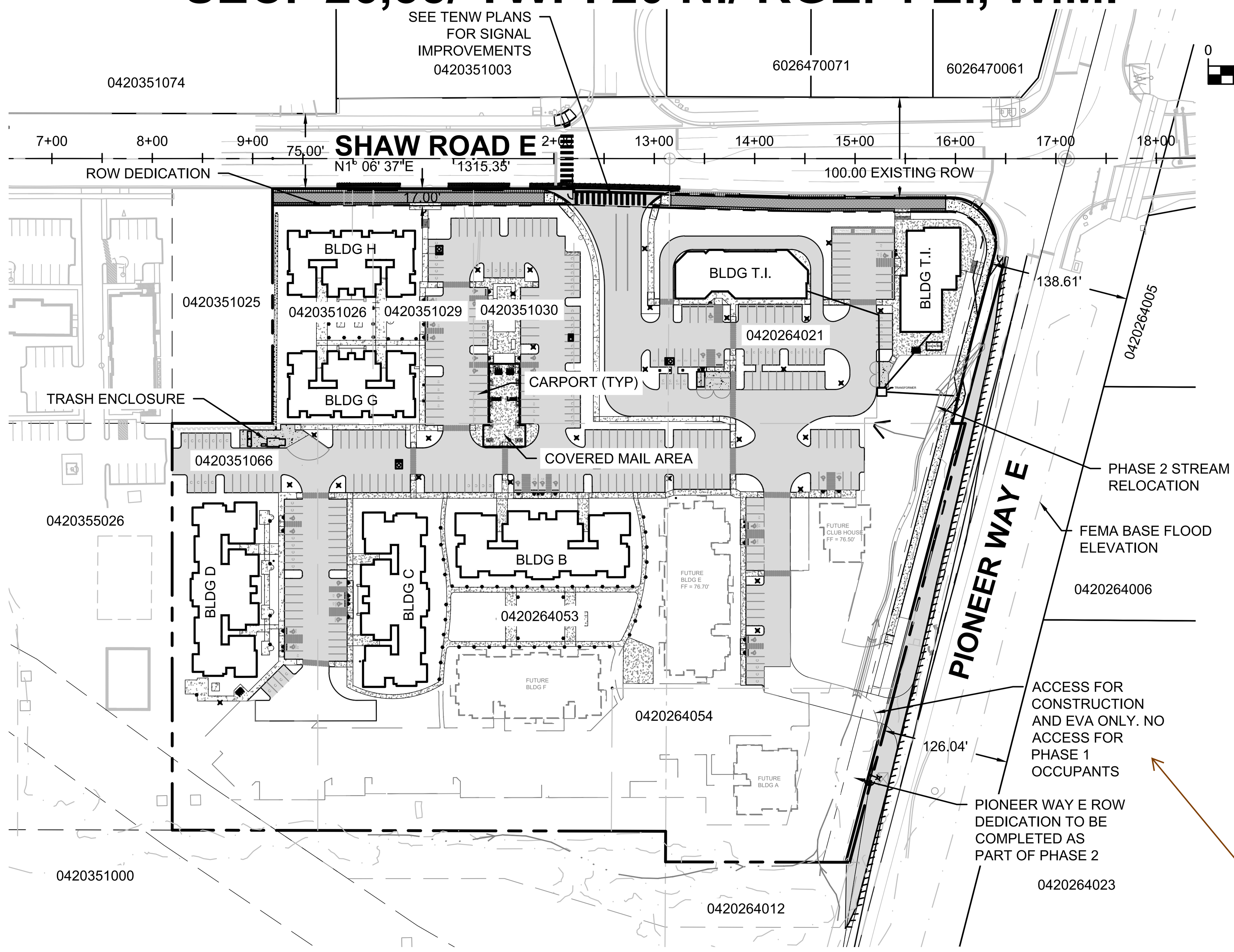
CUT AND FILL ESTIMATES

CUT: 2,500 CY
FILL: 45,600 CY
NET IMPORT: 43,100 CY

CONDITIONS:

1. PRIOR TO PERMIT ISSUANCE, RIGHT-OF-WAY DEDICATION ALONG SHAW ROAD SHALL BE APPROVED AND RECORDED. RIGHT-OF-WAY ALONG EAST PIONEER SHALL BE APPROVED AND RECORDED PRIOR TO ISSUANCE OF PHASE 2 CIVIL PERMIT.
2. PRIOR TO PERMIT ISSUANCE, THE APPLICANT SHALL CLARIFY WHETHER IT IS THE PROJECT'S INTENT TO DEDICATE RIGHT-OF-WAY OR GRANT AN EASEMENT FOR MAINTENANCE AND OPERATION OF THE SHAW ROAD TRAFFIC SIGNAL AND EQUIPMENT.
3. ALL PRIVATE STORM DRAINAGE FACILITIES SHALL BE COVERED BY A MAINTENANCE AGREEMENT PROVIDED BY THE CITY AND RECORDED WITH PIERCE COUNTY. UNDER THIS AGREEMENT, IF THE OWNER FAILS TO PROPERLY MAINTAIN THE FACILITIES, THE CITY, AFTER GIVING THE OWNER NOTICE, MAY PERFORM NECESSARY MAINTENANCE AT THE OWNER'S EXPENSE. PRIOR TO OCCUPANCY THE AGREEMENT SHALL BE APPROVED AND RECORDED.
4. PRIOR TO OCCUPANCY, A STREET MAINTENANCE COVENANT WILL BE REQUIRED TO ENSURE THAT PAVEMENT MARKINGS LOCATED ON PRIVATE PROPERTY AT THE DRIVE ENTRANCES WILL BE MAINTAINED.
5. AS MENTIONED DURING THE LAND USE APPLICATION (P-21-0034), THE EXISTING STORMWATER FACILITY SERVING THE OFFSITE PROPERTIES SOUTH OF THE PROJECT IS CURRENTLY IN VIOLATION OF NPDES REGULATIONS AND THE PUYALLUP MUNICIPAL CODE DUE TO LACK OF MAINTENANCE, BREACHING OF THE POND BERM, AND PASS-THROUGH OF A REGULATED STREAM THROUGH THE CONTROL STRUCTURE. HOWEVER, THE CITY IS WILLING TO ALLOW THE POND REMEDIATION TO OCCUR DURING PHASE 2, PROVIDED THE REMEDIATION IS ACCOMPLISH PRIOR TO ANY OCCUPANCY OF PHASE 1 STRUCTURES.

Know what's below. Call before you dig.



GRAPHIC SCALE
0 50 100 200
1" = 100 FEET

FLOOD PLAIN NOTE

THE FLOOD PLAIN INFORMATION SHOWN IN THE PLAN SET IS BASED ON THE REVISED PANEL 342 OF 1375 OF MAP 53053C0342E THAT WAS PART OF THE 09/08/22 LOMR. THE FLOOD ZONES AND BFE's SHOWN IN THE PLAN SET ARE DRAWN FROM A COMBINATION OF THE PDF MAP PANEL AND GIS DATA. THE INFORMATION SHOWN IN THE REVISED PANEL IS BASED ON AN ASSUMED RELOCATED STREAM LOCATION. ACTUAL FLOOD ZONE AND BFE's WILL BE BASED FINAL LOCATION AND ELEVATION OF RELOCATED STREAM.

3rd Review
PRCCP20230970
Mar 2024

APPROVED

BY ____________
CITY OF PUYALLUP
DEVELOPMENT ENGINEERING

DATE ____________

NOTE: THIS APPROVAL IS VOID AFTER 180 DAYS FROM APPROVAL DATE.
THE CITY WILL NOT BE RESPONSIBLE FOR ERRORS AND/OR OMISSIONS ON THESE PLANS.
FIELD CONDITIONS MAY DICTATE CHANGES TO THESE PLANS AS DETERMINED BY THE DEVELOPMENT ENGINEERING MANAGER.

SHEET LIST TABLE

Occupancy (for all buildings) will not be allowed until phase 2 frontage improvements are completed. There will be no phase 1 occupants. Please update note [Civil 0.0]

Note updated to exclude part about access for phase 1 occupants.

LEGAL DESCRIPTION

TAX PARCEL NO. 0420264021: PER CW TITLE TITLE RESOURCES GUARANTY COMPANY SUBDIVISION GUARANTEE ORDER NO. 40249900-T35
DATED JANUARY 22, 2021 AT 8:00 A.M.

BEGINNING AT THE INTERSECTION OF THE SOUTH LINE OF SECTION 26, TOWNSHIP 20 NORTH, RANGE 4 EAST, W.M., IN PIERCE COUNTY, WASHINGTON, WITH THE EAST 1/16TH LINE OF SAID SECTION;
THENCE SOUTH ALONG THE 1/16TH LINE OF SECTION 35, TOWNSHIP 20 NORTH, RANGE 4 EAST, W.M., A DISTANCE OF 95.4 FEET;
THENCE EAST 258.26 FEET;
THENCE NORTH TO THE SOUTHERLY LINE OF THE COUNTY ROAD;
THENCE NORTHWESTERLY ALONG SAID SOUTHERLY LINE OF COUNTY ROAD TO THE EAST 1/16TH LINE OF SECTION 26;
THENCE SOUTH ALONG SAID 1/16TH LINE TO THE POINT OF BEGINNING;

EXCEPT THE WEST 30 FEET THEREOF CONVEYED TO PIERCE COUNTY BY DEED RECORDED UNDER RECORDING NO. 1618885 FOR SHAW COUNTY ROAD;

ALSO EXCEPT THEREFROM THAT PORTION CONVEYED TO THE CITY PUYALLUP BY INSTRUMENT RECORDED UNDER AUDITOR'S FILE NO. 9408230215, BEING A RE-RECORD OF INSTRUMENT RECORDED UNDER AUDITOR'S FILE NO. 9308310480;

AND ALSO EXCEPT ANY PORTION THEREOF LYING SOUTHERLY AND WESTERLY OF A LINE DESCRIBED AS BEGINNING AT THE NORTHWEST CORNER OF THE NORTHEAST QUARTER OF THE NORTHEAST QUARTER OF SAID SECTION 35, HEREINAFTER CALLED "POINT A";
THENCE SOUTH ALONG THE 1/16TH LINE 95.4 FEET TO THE TRUE POINT OF BEGINNING OF THE LINE TO BE DESCRIBED;
THENCE EAST 258.35 FEET;
THENCE SOUTH TO A POINT 495.4 FEET SOUTH OF AND 258.35 FEET EAST OF "POINT A";
THENCE EAST TO THE EAST LINE OF SAID PREMISES AND THE TERMINUS OF SAID LINE, SAID POINT ALSO BEING DESCRIBED AS THE SOUTHWEST CORNER OF LOT 3 OF BOUNDARY LINE ADJUSTMENT RECORDED UNDER AUDITOR'S FILE NO. 200303315001;

SITUATE IN THE CITY PUYALLUP, COUNTY OF PIERCE STATE OF WASHINGTON.

TAX PARCEL NO. 0420264053: PER CW TITLE TITLE RESOURCES GUARANTY COMPANY SUBDIVISION GUARANTEE ORDER NO. 40249901-T35
DATED JANUARY 22, 2021 AT 8:00 A.M.

THAT PORTION OF THE NORTHEAST QUARTER OF THE NORTHEAST QUARTER OF SECTION 35, AND THE SOUTHEAST QUARTER OF THE SOUTHEAST QUARTER OF SECTION 26, TOWNSHIP 20 NORTH, RANGE 4 EAST, WM.M., IN PIERCE COUNTY, WASHINGTON, DESCRIBED AS FOLLOWS:

COMMENCING AT THE NORTHEAST CORNER OF THE WEST HALF OF THE NORTHEAST QUARTER OF THE NORTHEAST QUARTER OF SAID SECTION 35 WHICH POINT BEARS NORTH 88°32'51" WEST, 640.11 FEET FROM A BRASS IN CONCRETE MONUMENT MARKING THE NORTHEAST CORNER OF SAID SECTION 35;
THENCE ALONG THE EAST LINE OF SAID WEST HALF, SOUTH 01°15'04" WEST, 54.00 FEET TO THE TRUE POINT OF BEGINNING;
THENCE ALONG THE EAST LINE OF SAID WEST HALF, SOUTH 01°15'04" WEST, 437.43 FEET TO POINT LYING
SOUTH 88°53'30" EAST, 405.26 FEET OF THE EASTERLY EXTENSION OF THE NORTH LINE OF LOT 2 OF PIERCE COUNTY SHORT PLAT NO. 9303010321;
THENCE ALONG THE NORTHERLY EXTENSION OF THE EAST LINE OF SAID LOT 2, NORTH 01°06'30" EAST, 789.89 FEET TO THE SOUTHERLY MARGIN OF PIONEER WAY;
THENCE ALONG SAID SOUTHERLY MARGIN, SOUTH 74°08'09" EAST, 272.98 FEET TO A LINE LYING 263.84 FEET EAST OF AND PARALLEL WITH THE NORTHERLY EXTENSION OF THE EAST LINE OF SAID LOT 2;
THENCE ALONG SAID PARALLEL LINE, SOUTH 01°06'30" WEST, 282.06 FEET TO A LINE 54.00 FEET SOUTH OF AND PARALLEL WITH THE NORTH LINE OF SECTION 35:
THENCE ALONG SAID PARALLEL LINE, SOUTH 88°32'51" EAST, 142.38 FEET TO THE TRUE POINT OF BEGINNING;

EXCEPT THE SOUTH 145.00 FEET THEREOF;
(ALSO KNOWN AS LOT 3 OF RECORD OF SURVEY FOR BOUNDARY LINE ADJUSTMENT RECORDED MARCH 31, 2003 UNDER RECORDING NO. 200303315001).

SITUATE IN THE CITY OF PUYALLUP, COUNTY OF PIERCE, STATE OF WASHINGTON.

TAX PARCEL NO. 0420264054: PER CW TITLE TITLE RESOURCES GUARANTY COMPANY SUBDIVISION GUARANTEE ORDER NO. 40249902-T35
DATED JANUARY 22, 2021 AT 8:00 A.M.

THAT PORTION OF THE NORTHEAST QUARTER OF THE NORTHEAST QUARTER OF SECTION 35, AND THE SOUTHEAST QUARTER OF THE SOUTHEAST QUARTER OF SECTION 26, TOWNSHIP 20 NORTH, RANGE 4 EAST, WM.M., IN PIERCE COUNTY, WASHINGTON, DESCRIBED AS FOLLOWS:

BEGINNING AT THE NORTHEAST CORNER OF THE WEST HALF OF THE NORTHEAST QUARTER OF THE NORTHEAST QUARTER OF SECTION 35 WHICH POINT BEARS NORTH 88°32'51" WEST, 640.11 FEET FROM A BRASS IN CONCRETE MONUMENT MARKING THE NORTHEAST CORNER OF
SAID SECTION 35;
THENCE ALONG THE EAST LINE OF SAID WEST HALF, SOUTH 01°15'04" WEST, 54.00 FEET;
THENCE ALONG A LINE PARALLEL WITH THE NORTH LINE OF SAID SECTION 35, NORTH 88°32'51" WEST, 142.38 FEET;
THENCE NORTH 01°06'30" EAST, 282.08 FEET TO THE SOUTHERLY MARGIN OF PIONEER WAY;
THENCE ALONG SAID SOUTHERLY MARGIN, SOUTH 74°08'09" EAST, 179.36 FEET TO A LINE LYING 30.48 FEET EAST OF AND PARALLEL WITH EAST LINE OF THE WEST HALF OF THE NORTH EAST QUARTER OF THE NORTHEAST QUARTER OF SAID SECTION 35;
THENCE ALONG SAID PARALLEL LINE, SOUTH 01°15'04" WEST, 183.43 FEET TO THE NORTH LINE OF SAID SECTION 35;
THENCE ALONG SAID NORTH LINE, NORTH 88°32'51" WEST, 30.48 FEET TO THE POINT OF BEGINNING;

(ALSO KNOWN AS LOT 5 OF RECORD OF SURVEY FOR BOUNDARY LINE ADJUSTMENT RECORDED MARCH 31, 2003 UNDER RECORDING NO. 200303315001).

SITUATE IN THE CITY OF PUYALLUP, COUNTY OF PIERCE, STATE OF WASHINGTON.

TAX PARCEL NO. 0420351066: PER CW TITLE TITLE RESOURCES GUARANTY COMPANY SUBDIVISION GUARANTEE ORDER NO. 40249903-T35
DATED JANUARY 22, 2021 AT 8:00 A.M.

COMMENCING AT THE NORTHEAST CORNER OF THE WEST HALF OF THE NORTHEAST QUARTER OF THE NORTHEAST QUARTER OF SAID SECTION 35 WHICH POINT BEARS NORTH 88°32'51" WEST, 640.11 FEET FROM A BRASS IN CONCRETE MONUMENT MARKING THE NORTHEAST CORNER OF SAID SECTION 35;
THENCE ALONG THE EAST LINE OF SAID WEST HALF, SOUTH 01°15'04" WEST, 491.43 FEET TO A POINT LYING
SOUTH 88°53'30" EAST, 405.26 FEET TO THE EASTERLY EXTENSION OF THE NORTH LINE OF LOT 2 OF THE PIERCE COUNTY SHORT PLAT NO. 9303010321 AND THE TRUE POINT OF BEGINNING;
THENCE ALONG SAID NORTH LINE, NORTH 88°53'30" WEST, 405.26 TO THE NORTHEAST CORNER OF SAID LOT 2;
THENCE ALONG THE NORTHERLY EXTENSION OF THE EAST LINE OF SAID LOT 2, NORTH 01°06'30" EAST, 145.00 FEET;
THENCE SOUTH 88°53'30" EAST 405.62 FEET TO THE EAST LINE OF THE WEST HALF OF THE NORTHEAST QUARTER OF THE NORTHEAST QUARTER OF SAID SECTION 35;
THENCE ALONG SAID EAST LINE SOUTH 01°15'04" WEST, 145.00 FEET TO THE TRUE POINT OF BEGINNING

(ALSO KNOWN AS LOT 3 OF RECORD OF SURVEY FOR BOUNDARY LINE ADJUSTMENT RECORDED MARCH 31, 2003 UNDER RECORDING NO. 200303315001).

SITUATE IN THE CITY OF PUYALLUP, COUNTY OF PIERCE, STATE OF WASHINGTON.

TAX PARCEL NO. 0420351030: PER CW TITLE TITLE RESOURCES GUARANTY COMPANY SUBDIVISION GUARANTEE ORDER NO. 40249904-T35
DATED JANUARY 22, 2021 AT 8:00 A.M.

BEGINNING AT THE SIXTEENTH SECTION CORNER OF SECTION 35, TOWNSHIP 20 NORTH, RANGE 4 EAST OF THE WILLAMETTE MERIDIAN, 1321.48 FEET WEST OF THE CORNER COMMON TO SECTIONS 25, 26, 35 AND 36;
THENCE SOUTH ALONG THE SIXTEENTH SECTION 95.4 FEET TO THE TRUE POINT OF BEGINNING;
THENCE EAST 258.26 FEET;
THENCE SOUTH 100 FEET;
THENCE WEST 258.26 FEET;
THENCE NORTH 100 FEET TO THE TRUE POINT OF BEGINNING, IN PIERCE COUNTY, WASHINGTON.

EXCEPT SHAW COUNTY ROAD.

SITUATE IN THE CITY OF PUYALLUP, COUNTY OF PIERCE, STATE OF WASHINGTON.

TAX PARCEL NO. 0420351029: PER CW TITLE TITLE RESOURCES GUARANTY COMPANY SUBDIVISION GUARANTEE ORDER NO. 40249905-1-E
DATED JANUARY 22, 2021 AT 8:00 A.M.

BEGINNING AT THE 1/16 SECTION CORNER, 1321.48 FEET WEST OF CORNER MONUMENT
COMMON TO SECTIONS 25, 26, 35 AND 36 IN TOWNSHIP 20 NORTH, RANGE 4 EAST,
WILLAMETTE MERIDIAN, IN PIERCE COUNTY, WASHINGTON;
THENCE SOUTH ALONG THE 1/16 SECTION LINE 195.4 FEET TO THE TRUE POINT OF
BEGINNING;
THENCE EAST 258.26 FEET;
THENCE SOUTH 100 FEET;
THENCE WEST 258.26 FEET;
THENCE NORTH 100 FEET TO TRUE POINT OF BEGINNING.

EXCEPT THE WEST 30 FEET THEREOF FOR ROAD.

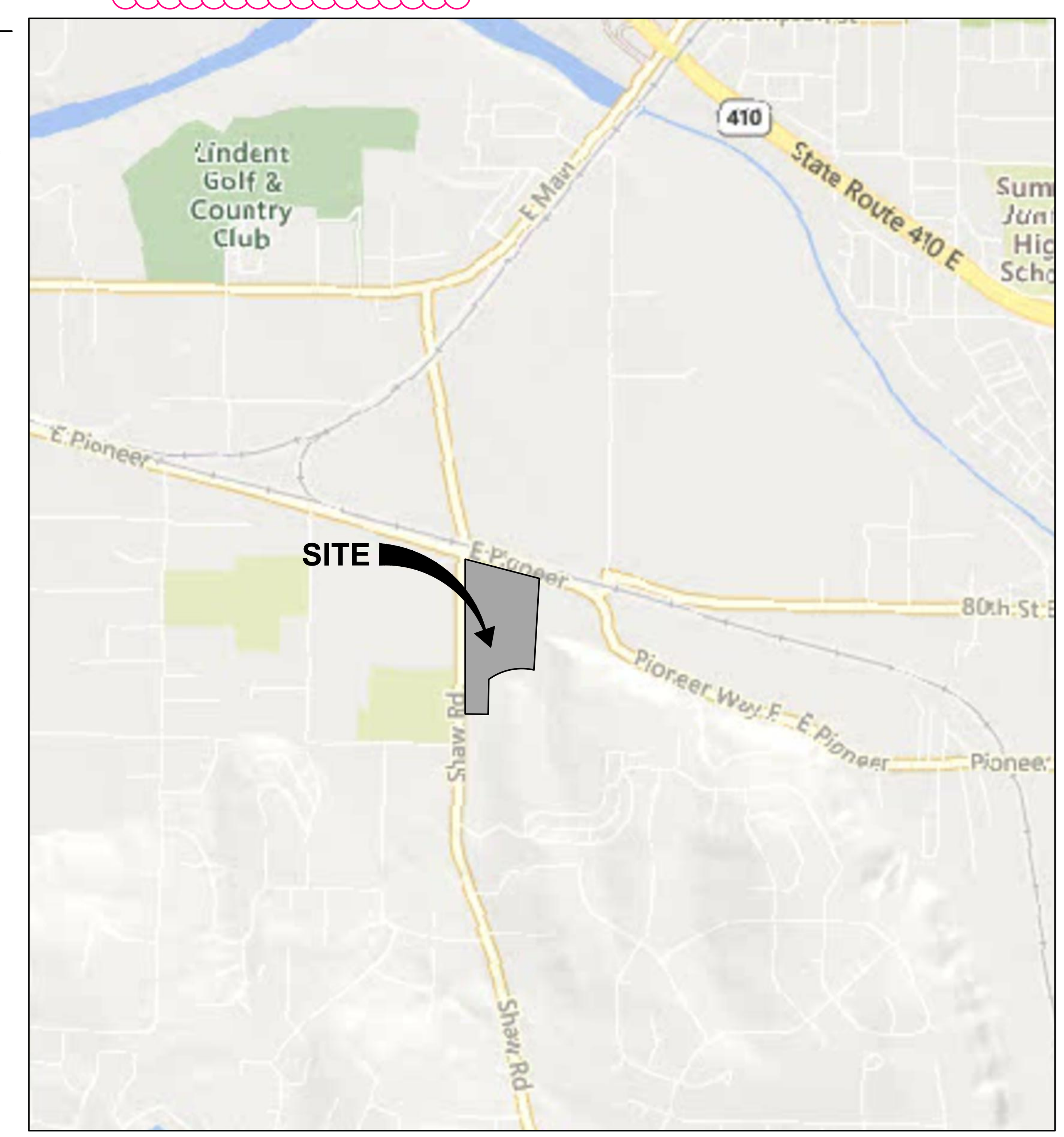
SITUATE IN THE COUNTY OF PIERCE, STATE OF WASHINGTON.

TAX PARCEL NO. 0420351026: PER CW TITLE TITLE RESOURCES GUARANTY COMPANY SUBDIVISION GUARANTEE ORDER NO. 40249906-T35
DATED JANUARY 22, 2021 AT 8:00 A.M.

BEGINNING AT THE 1/16 CORNER 1321.48 FEET WEST OF THE CORNER MONUMENT COMMON TO SECTIONS 25, 26, 35 AND 36 IN TOWNSHIP 20 NORTH, RANGE 4 EAST, WILLAMETTE MERIDIAN, IN PIERCE COUNTY, WASHINGTON;
THENCE SOUTH ALONG THE 1/16 SECTION LINE 294.5 FEET TO THE TRUE POINT OF BEGINNING;
THENCE EAST 258.35 FEET;
THENCE SOUTH 100 FEET;
THENCE WEST 258.35 FEET;
THENCE NORTH 100 FEET TO THE TRUE POINT OF BEGINNING, IN PIERCE COUNTY, WASHINGTON.

EXCEPT SHAW COUNTY ROAD.

SITUATE IN THE CITY OF PUYALLUP, COUNTY OF PIERCE, STATE OF WASHINGTON.



VICINITY MAP

1" = 1000'
2902 E PIONEER WAY

AHBL
TACOMA · SEATTLE · SPOKANE · TRI-CITIES
2215 North 30th Street, Suite 300, Tacoma, WA 98403
253.383.2422 TEL 253.383.2572 FAX www.ahbl.com WEB

Project Title:

EAST TOWN CROSSING PHASE 1

Client:
ASH DEVELOPMENT

GREG HELLE

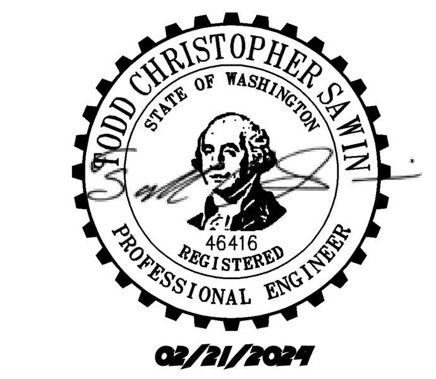
GREG.HELLE@ASHNW.COM

Project No.
2230752

Issue Set & Date:

PERMIT SUBMITTAL

02/20/2024



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4
3
2
1 01/29/24 CITY COMMENTS
Revisions:

Sheet Title:

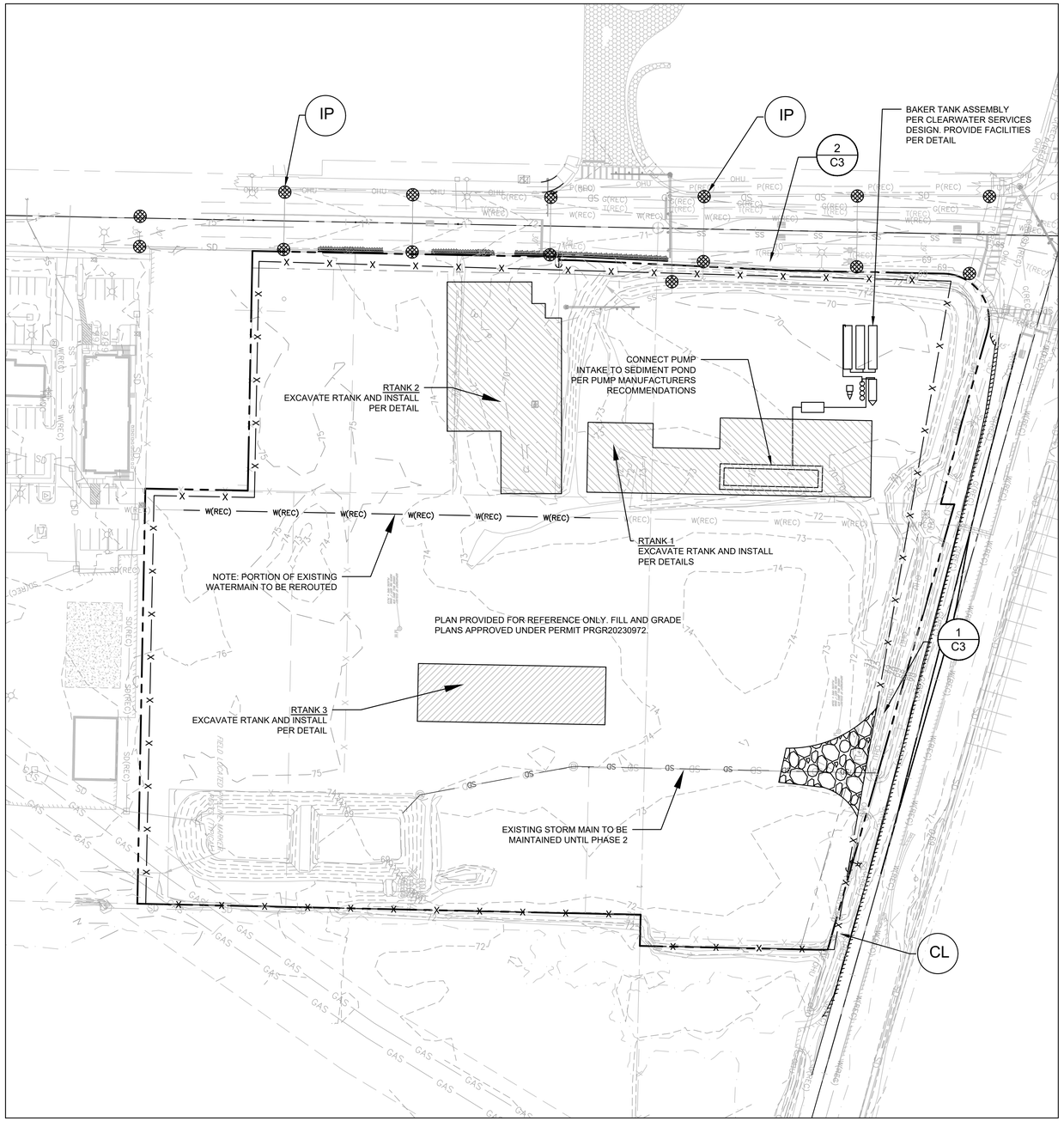
COVER SHEET

Designed by:	Drawn by:	Checked by:
CW	SK / RS	JI

Sheet No.

C0.0

EAST TOWN CROSSING PHASE 1
SEC. 26,35/ TWP. 20 N./ RGE. 4 E., W.M.



GRAPHIC SCALE

0 10 20 40

1" = 20 FEET

NOTE:

MAINTAIN SEDIMENT POND AND BAKER TANKS AS DESIGNED IN CLEAR, FILL AND GRADE PLANS PER CFG APPLICATION NUMBER PRGR20230972

TESC LEGEND:

CL	CLEARING/ GRADING/ DISTURBED LIMITS	
FF	FILTER FABRIC FENCE SEE DETAIL	2 / C2
CE	CONSTRUCTION ENTRANCE	1 / C2
IP	INLET PROTECTION	3 / C2, 4 / C2

APPROVED

BY _____
CITY OF PUYALLUP
DEVELOPMENT ENGINEERING

DATE _____

NOTE: THIS APPROVAL IS VOID AFTER 180 DAYS FROM APPROVAL DATE.
THE CITY WILL NOT BE RESPONSIBLE FOR ERRORS AND/OR OMISSIONS ON THESE PLANS.
FIELD CONDITIONS MAY DICTATE CHANGES TO THESE PLANS AS DETERMINED BY THE DEVELOPMENT ENGINEERING MANAGER.

AHBL
TACOMA · SEATTLE · SPOKANE · TRI-CITIES
2215 North 30th Street, Suite 300, Tacoma, WA 98403
253.383.2422 TEL 253.383.2572 FAX www.ahbl.com WEB

Project Title:

EAST TOWN CROSSING PHASE 1

Client:

ASH DEVELOPMENT

GREG HELLE

GREG.HELLE@ASHNW.COM

Project No.

2230752

Issue Set & Date:

PERMIT SUBMITTAL

02/20/2024

TODD CHRISTOPHER SWAIN
STATE OF WASHINGTON
4C416
REGISTERED
PROFESSIONAL ENGINEER
02/21/2024

1 01/29/24 CITY COMMENTS

Revisions:

Sheet Title:

TESC PLAN

Designed by:	Drawn by:	Checked by:
CW	SK / RS	JI

Sheet No.

C1.0

2 of 53 Sheets

811 Know what's **below.** **Call** before you dig.

EAST TOWN CROSSING PHASE 1
SEC. 26,35/ TWP. 20 N./ RGE. 4 E., W.M.

TESC INSPECTION NOTES:

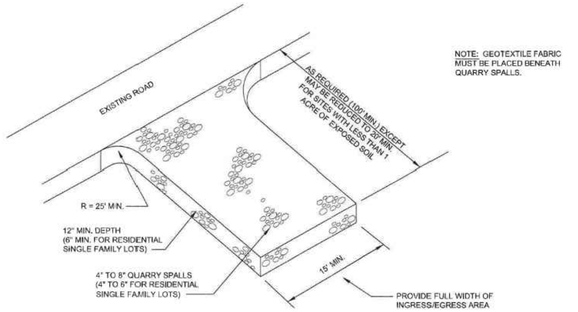
1. INSPECT ALL INLET PROTECTION ON CATCH BASINS. CLEAN OR REPLACE IF FULL OF SEDIMENT /DEBRIS AND REPAIR/REPLACE AS NEEDED IF DAMAGED TO MAINTAIN PROTECTION.
2. INSPECT ALL PERMANENT AND TEMPORARY STABILIZED SLOPES. REPAIR ANY DAMAGED SECTIONS AND RE-VEGETATE AS NEEDED TO ENSURE THE ESTABLISHMENT OF VEGETATION AND THAT NO EROSION OF THE SLOPES OCCUR.
3. INSPECT ALL FILTER FABRIC FENCING FOR SIGNS OF EROSION, DAMAGE OR FAILURES. REPAIR AND/OR REPLACE AS NEEDED. SEE FILTER FABRIC NOTES. SEDIMENT BUILD-UP ALONG FENCE SHALL BE REMOVED WHEN REACHES 1/3 THE FENCE HEIGHT. IF EROSION IS OCCURRING, CONTRACTOR SHALL INSTALL ADDITIONAL EROSION CONTROL MEASURES AS NEEDED TO PREVENT EROSION.
4. ANY FILL/CUT SLOPES SHALL BE INSPECTED FOR EROSION. IF SIGNS OF EROSION ARE PRESENT, INSTALL APPROPRIATE BMPS AS NEEDED TO STOP EROSION AND STABILIZE SLOPES.
5. TESC LEAD RESPONSIBLE FOR NOTIFYING ENGINEER IF ADDITIONAL MEASURES ARE WARRANTED.

PERMANENT STABILIZATION NOTES:

1. ALL EXPOSED SOILS AND SLOPES SHALL BE SEEDED OR OTHERWISE STABILIZED IMMEDIATELY AFTER CONSTRUCTION AND GRADING ACTIVITIES HAVE BEEN COMPLETED.
2. SILT FENCE, IF DEEMED APPROPRIATE, SHALL REMAIN FOR A MINIMUM OF 30 DAYS AFTER THE FINAL STABILIZATION OF THE SLOPES HAS OCCURRED.
3. ALL TEMPORARY EROSION CONTROL BMP'S SHALL BE REMOVED 30 DAYS AFTER FINAL STABILIZATION HAS OCCURRED AS DIRECTED BY CITY OR COUNTY INSPECTOR.
4. CONTRACTOR SHALL REFER TO THE CONSTRUCTION SWPP FOR APPLICABLE BMPS.

CONSTRUCTION ENTRANCE NOTES:

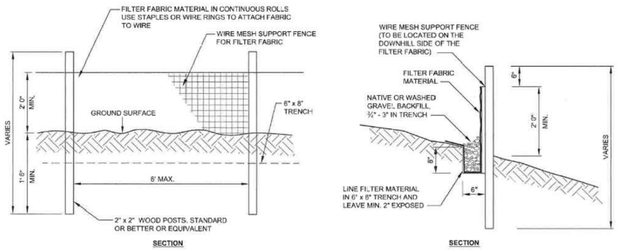
1. MATERIAL SHALL BE 4" TO 8" QUARRY SPALLS (4 TO 6 INCH FOR RESIDENTIAL SINGLE FAMILY LOTS) AND MAY BE TOP-DRESSED WITH 1 TO 3 INCH ROCK.
2. THE ROCK PAD SHALL BE AT LEAST 12" THICK AND 100' LONG (REDUCED TO 20 FEET FOR SITES LESS THAN 1 ACRE OF DISTURBED SOIL) WIDTH SHALL BE FULL WIDTH OF INGRESS AND EGRESS AREA. SMALLER PADS MAY BE APPROVED FOR SINGLE-FAMILY RESIDENTIAL AND COMMERCIAL SITES .
3. ADDITIONAL ROCK SHALL BE ADDED PERIODICALLY TO MAINTAIN FUNCTION OF THE PAD.
4. IF THE PAD DOES NOT ADEQUATELY REMOVE MUD FROM THE VEHICLE WHEELS, THE WHEELS SHALL BE HOSED OFF BEFORE THE VEHICLE ENTERS A PAVED STREET.THE WASHING SHALL BE DONE ON AN AREA COVERED WITH CRUSHED ROCK AND WASH WATER SHALL DRAIN TO A SEDIMENT RETENTION FACILITY OR THROUGH A SILT FENCE.
5. CONSTRUCTION ACCESS IS FORBIDDEN ALONG SHAW ROAD FOR THE DURATION OF CONSTRUCTION.



1 CONSTRUCTION ENTRANCE
SCALE:NTS

FILTER FABRIC FENCE NOTES:

1. SUPPORT POST, WITH A MINIMUM 6-INCH OVERLAP. AND SECURELY FASTENED AT BOTH ENDS TO POSTS.
2. POSTS SHALL BE SPACED A MAXIMUM OF 6 FEET APART AND DRIVEN SECURELY INTO THE GROUND (MINIMUM OF 30 INCHES).
3. A TRENCH SHALL BE EXCAVATED APPROXIMATELY 8 INCHES WIDE AND 12 INCHES DEEP ALONG THE LINE OF POSTS
4. AND UPSLOPE FROM THE BARRIER. THIS TRENCH SHALL BE BACKFILLED WITH WASHED GRAVEL.
5. WHEN STANDARD STRENGTH FILTER FABRIC IS USED, A WIRE MESH SUPPORT FENCE SHALL BE FASTENED SECURELY TO THE UPSLOPE SIDE OF THE POSTS USING HEAVY-DUTY WIRE STAPLES AT LEAST 1 INCH LONG, TIE WIRES OR HOG RINGS. THE WIRE SHALL EXTEND INTO THE TRENCH A MINIMUM OF 4 INCHES AND SHALL NOT EXTEND MORE THAN 24 INCHES ABOVE THE ORIGINAL GROUND SURFACE.
6. THE STANDARD STRENGTH FILTER FABRIC SHALL BE STAPLED OR WIRED TO THE FENCE, AND 20 INCHES OF THE FABRIC SHALL BE EXTENDED INTO THE TRENCH. THE FABRIC SHALL NOT EXTEND MORE THAN 24 INCHES ABOVE THE ORIGINAL GROUND SURFACE. FILTER FABRIC SHALL NOT BE STAPLED TO EXISTING TREES.
7. WHEN EXTRA-STRENGTH FILTER FABRIC AND CLOSER POST SPACING IS USED, THE WIRE MESH SUPPORT FENCE MAY BE ELIMINATED. IN SUCH A CASE, THE FILTER FABRIC IS STAPLED OR WIRED DIRECTLY TO THE POSTS WITH ALL OTHER PROVISIONS OF ABOVE NOTES APPLYING.
8. FILTER FABRIC FENCES SHALL NOT BE REMOVED BEFORE THE UPSLOPE AREA HAS BEEN PERMANENTLY STABILIZED.
9. FILTER FABRIC FENCES SHALL BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL. ANY REQUIRED REPAIRS SHALL BE MADE IMMEDIATELY.
10. SILT FENCES WILL BE INSTALLED PARALLEL TO ANY SLOPE CONTOURS.
11. CONTRIBUTING LENGTH TO FENCE WILL NOT BE GREATER THAN 100 FEET.
12. DO NOT INSTALL BELOW AN OUTLET PIPE OR WEIR.
13. INSTALL DOWNSLOPE OF EXPOSED AREAS.
14. DO NOT DRIVE OVER OR FILL OVER SILT FENCES.



2 FILTER FABRIC FENCE
SCALE:NTS

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AMENDED SOILS NOTES:

- SOIL AMENDMENTS ARE REQUIRED FOR ALL DISTURBED AREAS IN ACCORDANCE WITH BMP L613: POST-CONSTRUCTION SOIL QUALITY AND DEPTH OF THE 2021 SURFACE WATER MANAGEMENT MANUAL
- AMENDED SOILS SHALL BE A MINIMUM OF 8" (NON-COMPACTED) WITH SUBSOILS SCARIFIED AT LEAST 4" WITH INCORPORATION OF THE UPPER MATERIAL TO AVOID STRATIFIED LAYERS, WHERE FEASIBLE.
- QUALITY OF COMPOST AND OTHER MATERIALS USED TO MEET THE ORGANIC CONTENT REQUIREMENTS ARE AS FOLLOWS:

a. THE ORGANIC CONTENT FOR "PRE-APPROVED" AMENDMENT RATES CAN BE MET ONLY USING COMPOST THAT MEETS THE DEFINITION OF "COMPOSTED MATERIALS" IN WAC 173-350-220. THE WAC IS AVAILABLE ONLINE AT: HTTP://WWW.ECY.WA.GOV/PROGRAMS/SWFA/FACILITIES/350.HTML THE COMPOST MUST ALSO HAVE AN ORGANIC MATTER CONTENT OF 35% TO 65%, AND A CARBON TO NITROGEN RATIO BELOW 25:1. THE CARBON TO NITROGEN RATIO MAY BE AS HIGH AS 35: 1 FOR PLANTINGS COMPOSED ENTIRELY OF PLANTS NATIVE TO THE PUGET SOUND LOWLANDS REGION.
b. CALCULATED AMENDMENT RATES MAY BE MET THROUGH USE OF COMPOSTED MATERIALS AS DEFINED ABOVE; OR OTHER ORGANIC MATERIALS AMENDED TO MEET THE CARBON TO NITROGEN RATIO REQUIREMENTS, AND MEETING THE CONTAMINANT STANDARDS OF GRADE A COMPOST.

- USE ONE OF THE FOLLOWING OPTIONS TO MEET THE POST CONSTRUCTION SOIL QUALITY AND DEPTH REQUIREMENTS. USE THE MOST RECENT VERSION OF "GUIDELINES FOR RESOURCES FOR IMPLEMENTING SOIL QUALITY AND DEPTH BMP T5.13" TO MEET THE REQUIREMENTS OF THIS BMP. THIS GUIDANCE CAN BE FOUND ONLINE AT:WWW.SOILSFORSALMON.ORG

a. LEAVE NATIVE VEGETATION AND SOIL UNDISTURBED, AND PROTECT FROM COMPACTION DURING CONSTRUCTION
b. AMEND EXISTING SITE TOPSOIL OR SUBSOIL EITHER AT DEFAULT "PRE-APPROVED" RATES, OR AT CUSTOM CALCULATED RATES BASED ON SPECIFIC TESTS OF THE SOIL AND AMENDMENT
c. STOCKPILE EXISTING TOPSOIL DURING GRADING, AND REPLACE IT PRIOR TO PLANTING. STOCKPILED TOPSOIL MUST ALSO BE AMENDED IF NEEDED TO MEET THE ORGANIC MATTER OR DEPTH REQUIREMENTS, EITHER AT A DEFAULT "PRE-APPROVED" RATE OR AT A CUSTOM CALCULATED RATE.
d. IMPORT TOPSOIL MIX OF SUFFICIENT ORGANIC CONTENT AND DEPTH TO MEET THE REQUIREMENTS. MORE THAN ONE METHOD MAY BE USED ON DIFFERENT PORTIONS OF THE SAME SITE. SOIL THAT ALREADY MEETS THE DEPTH AND ORGANIC MATTER QUALITY STANDARDS, AND IS NOT COMPACTED, DOES NOT NEED TO BE AMENDED.

- AMENDED SOILS SHALL BE MAINTAINED AS FOLLOWS:

a. SOIL QUALITY AND DEPTH SHOULD BE ESTABLISHED TOWARD THE END OF CONSTRUCTION AND ONCE ESTABLISHED, SHOULD BE PROTECTED FROM COMPACTION, SUCH AS FROM LARGE MACHINERY USE, AND FROM EROSION.
b. SOIL SHOULD BE PLANTED AND MULCHED AFTER INSTALLATION.
c. PLANT DEBRIS OR ITS EQUIVALENT SHOULD BE LEFT ON THE SOIL SURFACE TO REPLENISH ORGANIC MA TIER.
d. IT SHOULD BE POSSIBLE TO REDUCE USE OF IRRIGATION, FERTILIZERS, HERBICIDES AND PESTICIDES. THESE ACTIVITIES SHOULD BE ADJUSTED WHERE POSSIBLE,RATHER THAN CONTINUING TO IMPLEMENT FORMERLY ESTABLISHED PRACTICES.

- SEE PROJECT CONSTRUCTION SWPPP FOR ADDITIONAL INFORMATION OR SECTION 2.2.1.4 OF CHAPTER 2 OF VOLUME 6 OF THE 2021 SURFACE WATER MANAGEMENT MANUAL

MULCHING NOTES:

1. MULCH MATERIALS USED SHALL BE STRAW OR HAY, AND SHALL BE APPLIED AT THE RATE OF 75-100 POUNDS PER 1000 SQ. FT. (APPX 2" THICK).
2. MULCH SHALL BE APPLIED IN ALL AREAS WITH EXPOSED SLOPES GREATER THAN 2: 1.
3. MULCHING SHALL BE USED IMMEDIATELY AFTER SEEDING OR IN AREAS WHICH CANNOT BE SEEDED BECAUSE OF THE SEASON.
4. ALL AREAS NEEDING MULCH SHALL BE COVERED BY NOVEMBER 1.

CONTRACTOR NOTES:

1. INLET PROTECTION SHALL BE INSTALLED IN ALL NEWLY CONSTRUCTED CATCH BASINS AND ALONG ALL IMPACTED FRONTAGE AND OFFSITE AREAS PER THE REQUIREMENTS OF THE COUNTY INSPECTOR PER DETAIL 5 ON THIS SHEET 5.
2. CONSTRUCTION FENCE CAN BE UTILIZED IN PLACE OF FILTER FABRIC FENCE ONLY IN AREAS WHERE THE GRADES DO NOT ALLOW THE POTENTIAL FOR ANY STORMWATER TO LEAVE THE SITE.
3. ALL DEMOLISHED MATERIALS SHALL BE REMOVED FROM THE SITE AND DISPOSED OF AT A CITY APPROVED LOCATION AND IN A MANNER CONSISTENT WITH CURRENT REGULATIONS AND REQUIREMENTS.
4. ALL AREAS THAT WILL BE UNWORKED FOR MORE THAN SEVEN (7) DAYS DURING THE DRY SEASON OR TWO (2) DAYS DURING THE WET SEASON, SHALL BE COVERED WITH STRAW, WOOD FIBER MULCH, COMPOST, PLASTIC SHEETING, OR OTHER EQUIVALENT PER CURRENT CITY OR COUNTY STANDARDS. SEE SEEDING NOTES AND MULCHING NOTES ON THIS SHEET.
5. CONTRACTOR SHALL DESIGNATE A WASHINGTON DEPT OF ECOLOGY CERTIFIED EROSION CONTROL LEAD PERSON, AND SHALL COMPLY WITH THE CONSTRUCTION STORMWATER POLLUTION PREVENTION PLAN (SWPPP) PREPARED FOR THE PROJECT.
6. AT ANY TIME DURING CONSTRUCTION IT IS DETERMINED BY THE CITY OR COUNTY THAT MUD AND DEBRIS ARE BEING TRACKED ONTO PUBLIC STREETS WITH INSUFFICIENT CLEANUP, ALL WORK SHALL CEASE ON THE PROJECT UNTIL THIS CONDITION IS CORRECTED. THE CONTRACTOR AND/OR THE OWNER SHALL IMMEDIATELY TAKE ALL STEPS NECESSARY TO PREVENT FUTURE TRACKING OF MUD AND DEBRIS INTO THE PUBLIC ROW, WHICH MAY INCLUDE THE INSTALLATION OF A WHEEL WASH FACILITY ON-SITE.
7. SEDIMENT LADEN RUNOFF SHALL NOT BE ALLOWED TO DISCHARGE BEYOND THE LIMITS OF THE IMPROVEMENTS. ADDITIONAL MEASURES SHALL BE INSTALLED AS NEEDED.
8. SAND BAGS SHALL BE SECURELY PLACED AROUND INSTALLED CATCH BASINS WITH INLET PROTECTION AS FIELD AND WEATHER CONDITIONS WARRANT SO TO PROTECT ALL DISPERSION AND INFILTRATION TRENCHES SEDIMENT LADEN RUNOFF.
9. TREES WITHIN WORKING LIMITS TO BE SAVED, SHALL BE MARKED AS SUCH ON SITE AND PROTECTION FENCE PLACED AROUND EACH TREE.

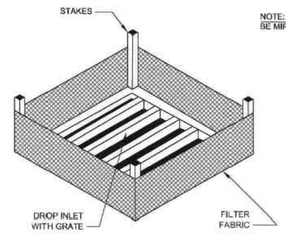
SEEDING NOTES:

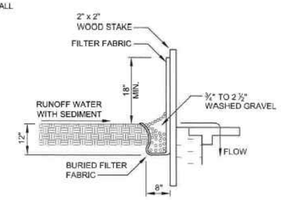
1. THE FOLLOWING SEED MIXTURE SHALL BE AS BELOW AND SHALL BE APPLIED AT THE RATE RECOMMENDED BY THE SUPPLIER.

TABLE D.3.2.B TEMPORARY EROSION CONTROL SEED MIX

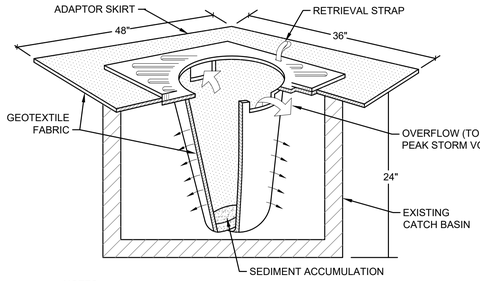
	% WEIGHT	% PURITY	% GERMINATION
CHEWINGS OR RED FESCUE FESTUCA *RUBRA VAR. COMMUTATA OR FESTUCA RUBRA*	40	98	90
ANNUAL OR PERENNIAL RYE *LOLIUM MULTIFLORUM OR LOLIUM PERENNE*	40	98	90
REDTOP OR COLONIAL BENTGRASS *AGROSTIS ALBA OR AGROSTIS TENUIS*	10	92	85
WHITE DUTCH CLOVER *TRIFOLIUM REPENS*	10	98	90

2. SEED BEDS PLANTED BETWEEN MAY 1 AND OCTOBER 31 WILL REQUIRE IRRIGATION AND OTHER MAINTENANCE AS NECESSARY TO FOSTER AND PROTECT THE ROOT STRUCTURE.
3. FOR SEED BEDS PLANTED BETWEEN OCTOBER 31 AND APRIL 30, ARMORING OF THE SEED BED WILL BE NECESSARY. (E.G., GEOTEXTILES, JUTE MAT, CLEAR PLASTIC COVERING).
4. BEFORE SEEDING, INSTALL NEEDED SURFACE RUNOFF CONTROL MEASURES SUCH AS GRADIENT TERRACES, INTERCEPTOR DIKES, SWALES, LEVEL SPREADERS AND SEDIMENT BASINS.
5. THE SEEDBED SHALL BE FIRM WITH A FAIRLY FINE SURFACE, FOLLOWING SURFACE ROUGHENING. PERFORM ALL OPERATIONS ACROSS OR AT RIGHT ANGLES TO THE SLOPE.
6. FERTILIZERS ARE TO BE USED ACCORDING TO SUPPLIER'S RECOMMENDATIONS. AMOUNTS USED SHOULD BE MINIMIZED, ESPECIALLY ADJACENT TO WATER BODIES AND WETLANDS.





3 INLET PROTECTION WITH FABRIC FENCE
SCALE:NTS



NOTES:
1. FILTERS SHALL BE INSPECTED AFTER EACH STORM EVENT AND CLEANED OR REPLACED WHEN 1/3 FULL.
2. INSTALL INLET PROTECTION IN ALL NEW STORM STRUCTURES THAT WILL COLLECT STORMWATER AS THEY ARE INSTALLED.

4 INLET PROTECTION W/ FILTER SOCK
SCALE:NTS

APPROVED

BY _____
CITY OF PUYALLUP
DEVELOPMENT ENGINEERING

DATE _____

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Project Title:

EAST TOWN CROSSING PHASE 1

Client:
ASH DEVELOPMENT
GREG HELLE
GREG.HELLE@ASHNW.COM

Project No.
2230752

Issue Set & Date:
PERMIT SUBMITTAL
02/20/2024

WOOD CHRISTOPHER SEAMAN — STATE OF WASHINGTON — 46416 — REGISTERED PROFESSIONAL ENGINEER
02/21/2024

A
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A
1 01/29/24 CITY COMMENTS
Revisions:

Sheet Title:
TESC NOTES AND DETAILS

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CW	SK / RS	JI

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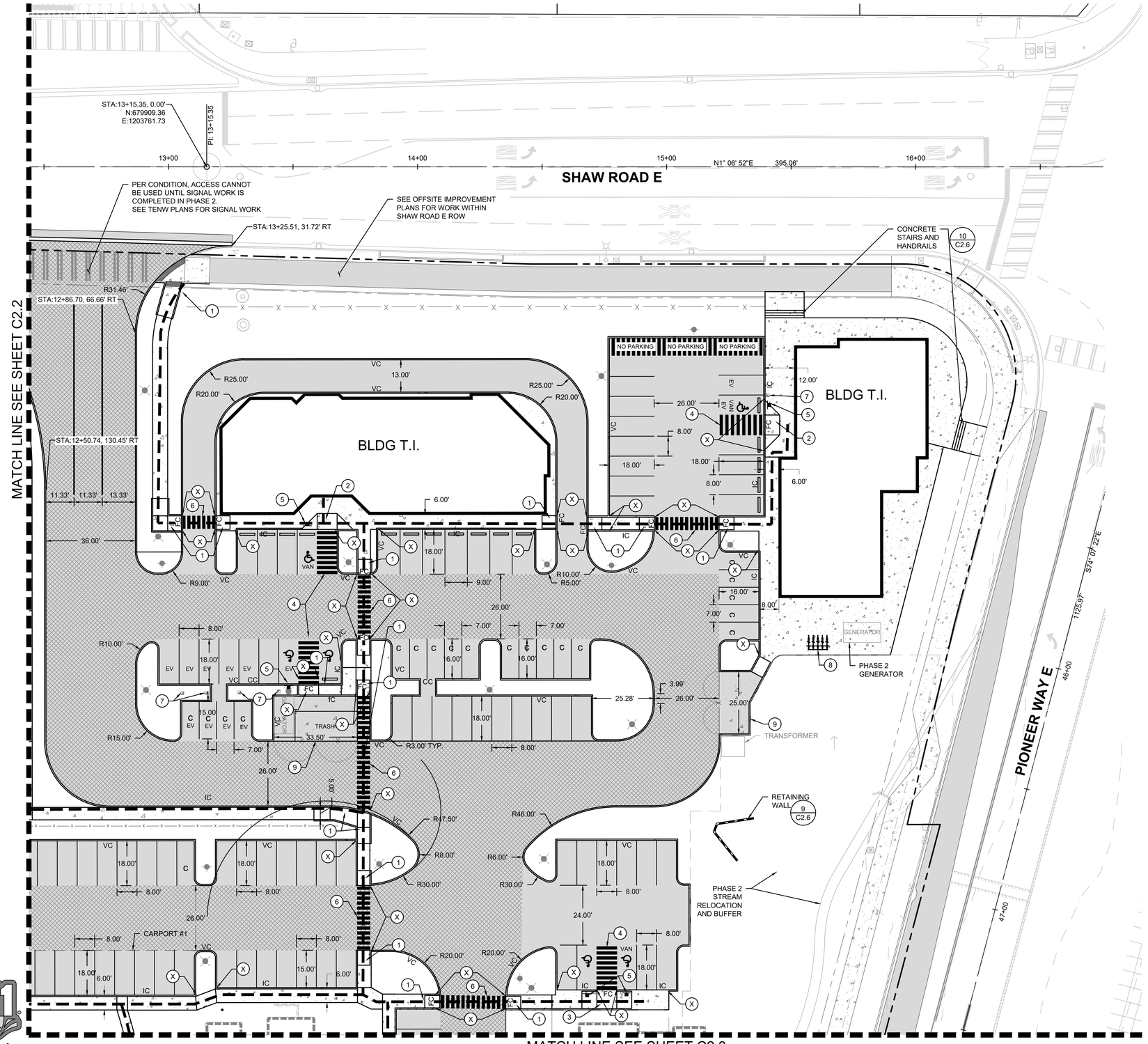
C1.1
3 of 53 Sheets

EAST TOWN CROSSING PHASE 1

SEC. 26,35/ TWP. 20 N./ RGE. 4 E., W.M.



GRAPHIC SCALE

0 10 20 40

1" = 20 FEET

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KEYNOTES

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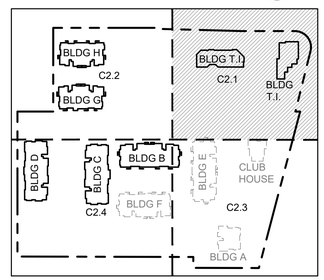

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GREG HELLE

GREG.HELLE@ASHNW.COM

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TODD CHRISTOPHER SWAIN — STATE OF WASHINGTON — 46416 — REGISTERED PROFESSIONAL ENGINEER

02/21/2024

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B

C

A 01/29/24 CITY COMMENTS

Revisions:

Sheet Title:

HORIZONTAL CONTROL AND PAVING PLAN NW

Designed by:	Drawn by:	Checked by:
CW	SK / RS	JI

Sheet No.

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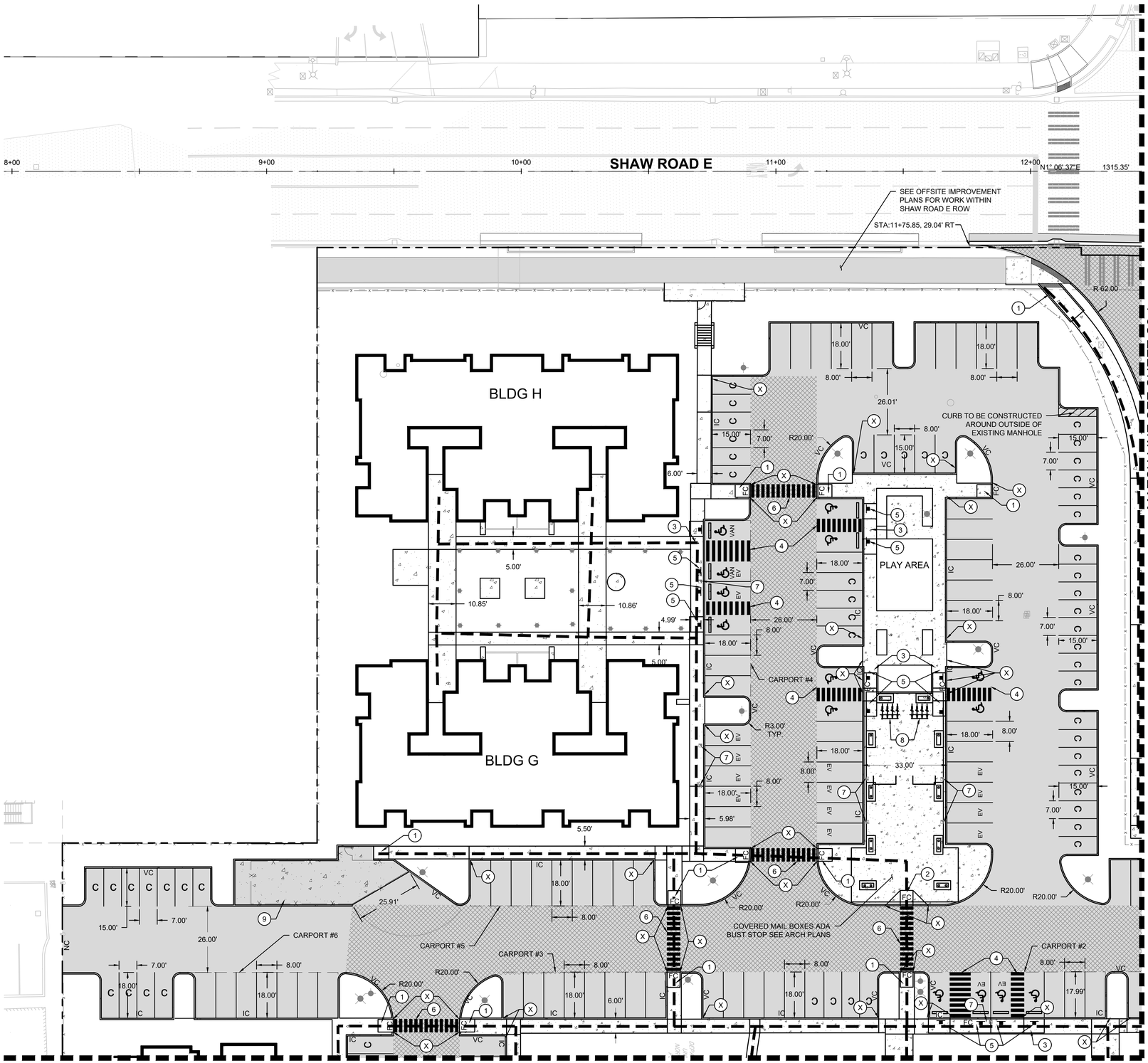
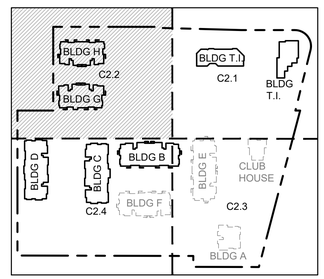
EAST TOWN CROSSING PHASE 1
SEC. 26,35/ TWP. 20 N./ RGE. 4 E., W.M.





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GRAPHIC SCALE
0 10 20 40
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CITY OF PUYALLUP
DEVELOPMENT ENGINEERING

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Project Title:

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Client:
ASH DEVELOPMENT

GREG HELLE

GREG.HELLE@ASHNW.COM

Project No.
2230752

Issue Set & Date:

PERMIT SUBMITTAL

02/20/2024

TODD CHRISTOPHER SAMUELSON — STATE OF WASHINGTON — 46416 — REGISTERED PROFESSIONAL ENGINEER
02/21/2024

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- 3
- 2
- 1 01/29/24 CITY COMMENTS

Sheet Title:

HORIZONTAL CONTROL AND PAVING PLAN SW

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CW	SK / RS	JI

Sheet No.

C2.2

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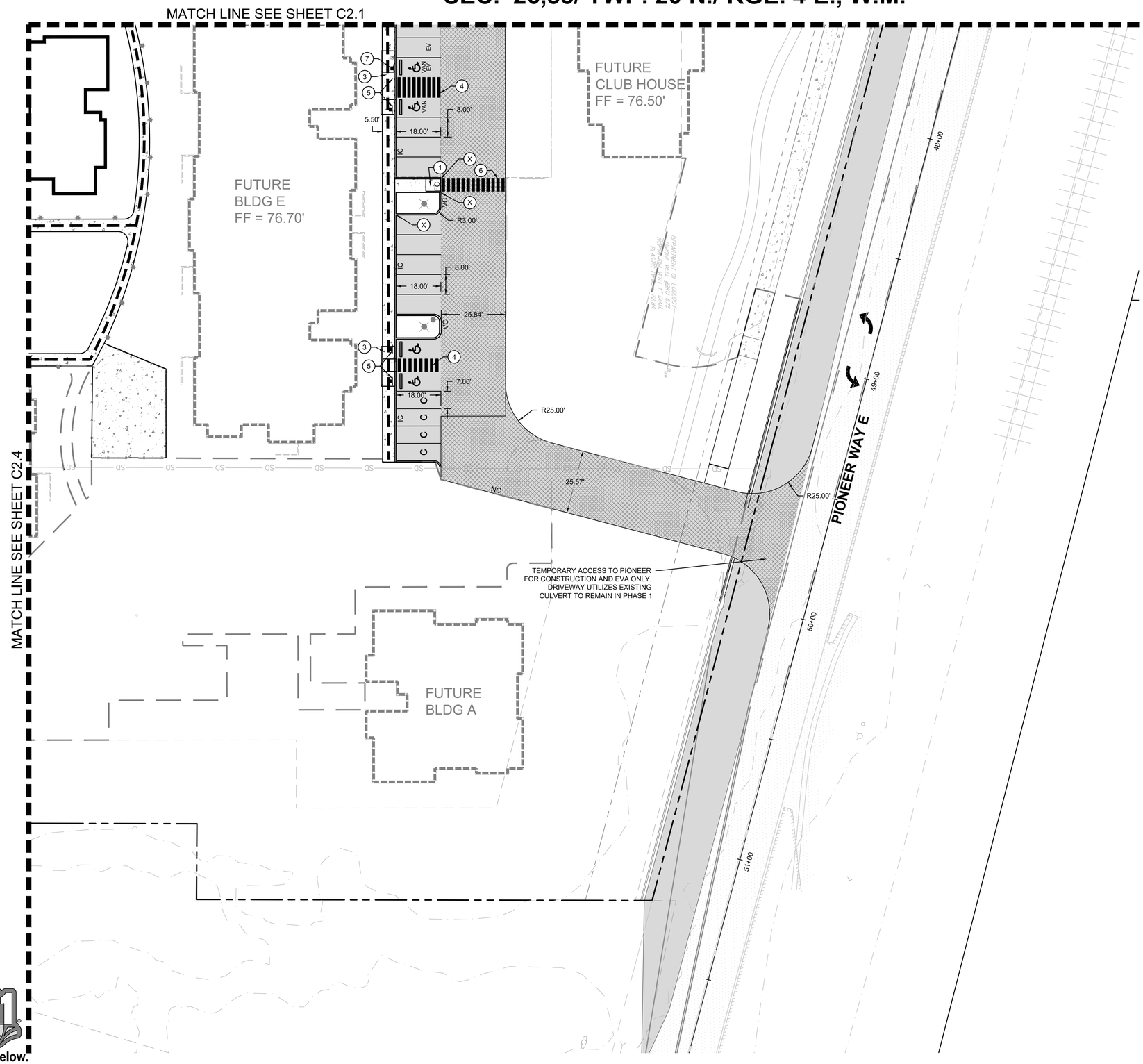
EAST TOWN CROSSING PHASE 1

SEC. 26,35/ TWP. 20 N./ RGE. 4 E., W.M.



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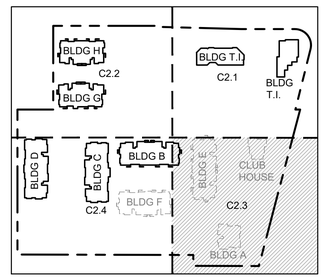

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02/20/2024

TODD CHRISTOPHER SWINT — STATE OF WASHINGTON — 46416 — REGISTERED PROFESSIONAL ENGINEER

02/21/2024

A

B

C

1 01/29/24 CITY COMMENTS

Revisions:

Sheet Title:

HORIZONTAL CONTROL AND PAVING PLAN NE

Designed by:	Drawn by:	Checked by:
CW	SK / RS	JI

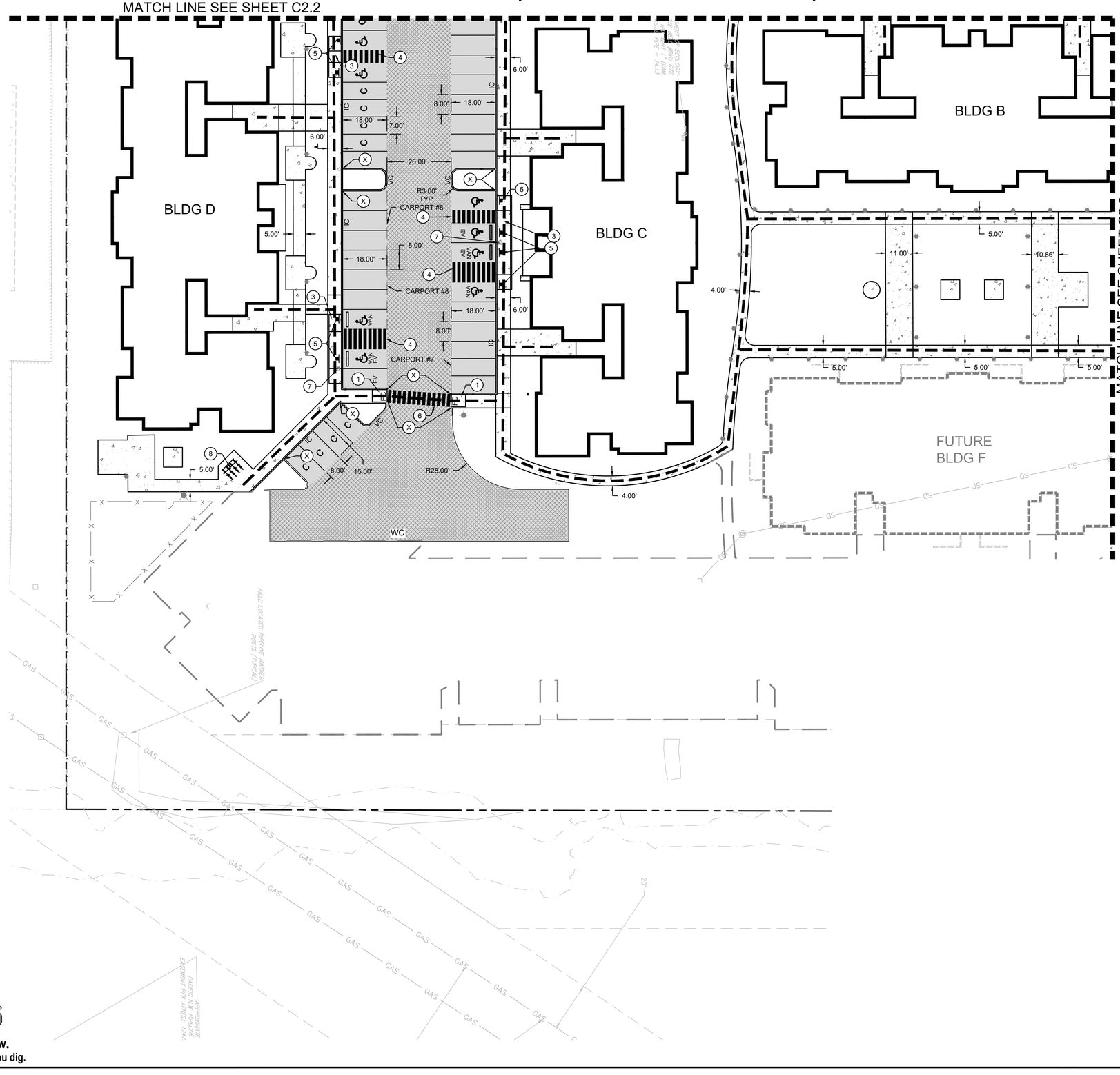
Sheet No.

C2.3

6 of 53 Sheets

EAST TOWN CROSSING PHASE 1

SEC. 26,35/ TWP. 20 N./ RGE. 4 E., W.M.



GRAPHIC SCALE

0 10 20 40

1" = 20 FEET

APPROVED

BY _____
CITY OF PUYALLUP
DEVELOPMENT ENGINEERING

DATE _____

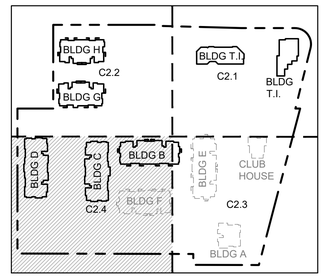
NOTE: THIS APPROVAL IS VOID AFTER 180 DAYS FROM APPROVAL DATE.
THE CITY WILL NOT BE RESPONSIBLE FOR ERRORS AND/OR OMISSIONS ON THESE PLANS.
FIELD CONDITIONS MAY DICTATE CHANGES TO THESE PLANS AS DETERMINED BY THE DEVELOPMENT ENGINEERING MANAGER.

LEGEND:

- RIGHT-OF-WAY/PROPERTY LINE
- CENTERLINE
- PROPOSED BUILDING OUTLINE
- FENCING - REFER TO LANDSCAPE ARCHITECTS DRAWINGS.
- ACCESSIBLE PATH
- ASPHALT PAVEMENT - STANDARD DUTY (1 / C2.6)
- ASPHALT PAVEMENT - ATB (2 / C2.6)
- PERVIOUS CONCRETE SIDEWALK (3 / C2.6)
- CEMENT CONCRETE - HEAVY DUTY (4 / C2.6)
- BOLLARD PROTECTION
- CEMENT CONCRETE WHEEL STOP (7 / C2.6)
- LIGHTING - REFER TO ELECTRICAL PLANS
- ADA ACCESSIBLE PARKING STALL (5 / C2.7)
- (X) CHANGE IN CURB TYPE / END CURB
- EC CONCRETE EXTRUDED CURB
- IC INTEGRAL CURB AND SIDEWALK (5 / C2.6)
- NC NO CURB
- CC CURB CUT (8 / C2.6)
- VC VERTICAL CURB (6 / C2.6)
- CG CONCRETE CURB AND GUTTER
- FC FLUSH CURB

KEYNOTES

1. ADA RAMP - SINGLE DIRECTIONAL (1 / C2.7, 3 / C2.7)
2. ADA RAMP - PERPENDICULAR
3. ADA RAMP - DEPRESSED SIDEWALK (2 / C2.7)
4. ADA STALL (5 / C2.7, 5 / C2.7)
5. ADA SIGN
6. CROSSWALK STRIPING
7. EV CHARGING - SEE ARCHITECTURAL PLANS
8. BIKE RACK, SEE ARCHITECTURAL PLANS
9. DUMPSTER ENCLOSURE, SEE ARCHITECTURAL PLANS



Know what's **below.** **Call** before you dig.

AHBL
TACOMA · SEATTLE · SPOKANE · TRI-CITIES
2215 North 30th Street, Suite 300, Tacoma, WA 98403
253.383.2422 TEL 253.383.2572 FAX www.ahbl.com WEB

Project Title:

EAST TOWN CROSSING PHASE 1

Client:
ASH DEVELOPMENT
GREG HELLE
GREG.HELLE@ASHNW.COM

Project No.
2230752

Issue Set & Date:
PERMIT SUBMITTAL
02/20/2024

TODD CHRISTOPHER SWINT — STATE OF WASHINGTON — 46416 — REGISTERED PROFESSIONAL ENGINEER
02/21/2024

A
B
C
1 01/29/24 CITY COMMENTS

Revisions:

Sheet Title:

HORIZONTAL CONTROL AND PAVING PLAN SE

Designed by:	Drawn by:	Checked by:
CW	SK / RS	JI

Sheet No.

C2.4

7 of 53 Sheets

EAST TOWN CROSSING PHASE 1

SEC. 26,35/ TWP. 20 N./ RGE. 4 E., W.M.

APPROVED

BY _____
CITY OF PUYALLUP
DEVELOPMENT ENGINEERING

DATE _____

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SHAW ROAD EAST

PIONEER WAY EAST

FIRE HYDRANT

YELLOW PAINTED CURB WITH WHITE STENCILED "NO PARKING" "FIRE LANE" (TYP)

NO PARKING

26'

20'

36'

60'

25'

TRANSFORMER

GENERATOR

TRASH

FUTURE CLUB HOUSE FF = 76.50'

FUTURE BLDG E FF = 76.70'

FUTURE BLDG F

TEMPORARY NO PARKING SIGN WITH ARROW POINTING EAST AND WEST EVERY 50'

R 28'

20'

NO PARKING SIGN WITH ARROW POINTING NORTH AND SOUTH

60' 60'

GRAPHIC SCALE
0 15 30 60
1" = 30 FEET

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STATE OF WASHINGTON
22416
REGISTERED
PROFESSIONAL ENGINEER
02/21/2024

Revisions:
1 01/29/24 CITY COMMENTS
2
3
4

Sheet Title:

FIRE LANE AND SIGNAGE PLAN

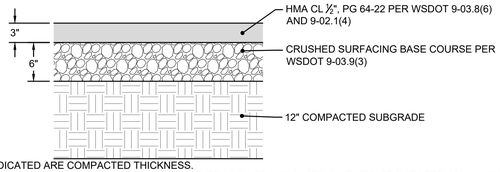
Designed by:	Drawn by:	Checked by:
CW	SK / RS	JI

Sheet No.

C2.5

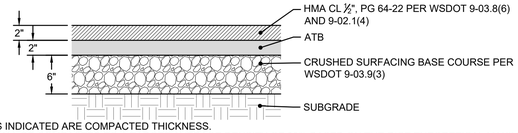
8 of 53 Sheets

EAST TOWN CROSSING PHASE 1
SEC. 26,35/ TWP. 20 N./ RGE. 4 E., W.M.



NOTES:
1. DEPTHS INDICATED ARE COMPACTED THICKNESS.
2. HMA SHALL BE COMPACTED TO A TARGET AVERAGE DENSITY OF 92% BASED ON THE RICE THEORETICAL MAXIMUM DENSITY PER ASTM D-2041. INDIVIDUAL LOCATIONS SHALL BE COMPACTED NOT LESS THAN 90% NOR MORE THAN 96%.
3. ALL ASPHALT BASE MATERIAL SHALL BE COMPACTED TO A MINIMUM DENSITY OF 95% BASED ON THE MODIFIED PROCTOR MAXIMUM DRY DENSITY PER ASTM D-1557.
4. SUBGRADE SHALL BE COMPACTED TO A FIRM AND UNYIELDING CONDITION PRIOR TO PLACEMENT OF ANY PAVEMENT LAYERS. ANY LOCALIZED ZONES OF SOFT, ORGANIC-RICH, OR DEBRIS-LADEN SOILS SHOULD BE OVEREXCAVATED AND REPLACED WITH STRUCTURAL FILL MATERIAL.
5. SEAL JOINTS WITH EMULSIFIED ASPHALT PER PROJECT SPECIFICATIONS.

1 ASPHALT PAVEMENT - STANDARD DUTY
NOT TO SCALE



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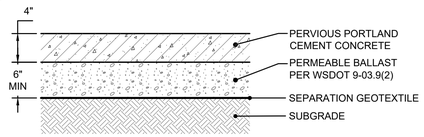
5. SEAL JOINTS WITH EMULSIFIED ASPHALT PER PROJECT SPECIFICATIONS.

2 ASPHALT PAVEMENT - ATB
NOT TO SCALE



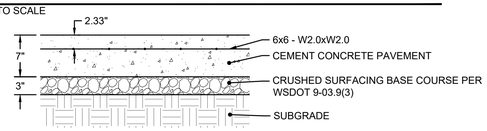
CONCRETE MIX DESIGN

- UNIT WEIGHT: 120 TO 130 POUNDS PER CUBIC FOOT (PERMEABLE CONCRETE IS APPROXIMATELY 70 TO 80 PERCENT OF THE UNIT WEIGHT OF CONVENTIONAL CONCRETE) (FCPA, N.D.)
- VOID SPACE: 15 TO 21 PERCENT ACCORDING TO ASTM C 138.
- WATER CEMENT RATIO: 0.27 TO 0.35.
- AGGREGATE TO CEMENT RATIO: 4:1 TO 4.5:1
- AGGREGATE: USE EITHER:
  3/8 - INCH TO NO. 16 WASHED CRUSHED OR ROUND PER ASTM C 35 OR
  3/8 - INCH TO NO. 50 WASHED CRUSHED OR ROUND PER ASTM D 448.

PORTLAND CEMENT: TYPE I OR II CONFORMING TO ASTM C 150 OR TYPE IP OR IS CONFORMING TO ASTM C 595.

- ADMIXTURES: CAN BE USED TO INCREASE WORKING TIME AND INCLUDE: WATER REDUCING/RETARDING ADMIXTURE
- IN CONFORMANCE WITH ASTM C 494 TYPE D AND HYDRATION STABILIZER IN CONFORMANCE WITH ASTM C494 TYPE B.
- WATER: USE POTABLE WATER.
- FIBER MESH CAN BE INCORPORATED INTO THE CEMENT MIX FOR ADDED STRENGTH.
- PROVIDE JOINTS AT 15' O.C. - PROVIDE DOWEL BARS 1 ½" x 18" LONG ON 18" CENTERS ON TRANSVERSE JOINTS AND #5 TIE BARS x 30" LONG ON 36" CENTERS ON LONGITUDINAL JOINTS PER WSDOT A-40.10-04.

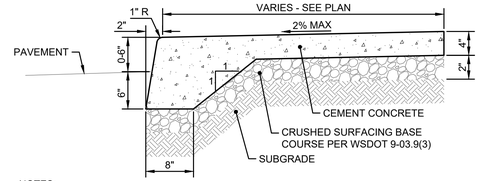
3 PERVIOUS CEMENT CONCRETE
NOT TO SCALE



NOTES:
1. DEPTHS INDICATED ARE COMPACTED THICKNESSES.
2. CEMENT CONCRETE PAVEMENT SHALL CONSIST OF PORTLAND CEMENT CONCRETE WITH A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI AND A MINIMUM RUPTURE MODULUS OF 580 PSI.
3. GRANULAR SUBBASE SHALL CONSIST OF "BALLAST" PER WSDOT 9-03.9(1), "GRAVEL BORROW" PER WSDOT 9-03.14, OR CRUSHED RECYCLED CONCRETE PROVIDED THAT IT MEETS THE SAME TEXTURAL CRITERIA AS "BALLAST" OR "GRAVEL BORROW."
4. ALL BASE MATERIAL SHALL BE COMPACTED TO A MINIMUM DENSITY OF 95% BASED ON THE MODIFIED PROCTOR MAXIMUM DRY DENSITY PER ASTM D-1557.
5. SUBGRADE SHALL BE COMPACTED TO A FIRM AND UNYIELDING CONDITION PRIOR TO PLACEMENT OF ANY PAVEMENT LAYERS. ANY LOCALIZED ZONES OF SOFT, ORGANIC-RICH, OR DEBRIS-LADEN SOILS SHOULD BE OVEREXCAVATED AND REPLACED WITH STRUCTURAL FILL MATERIAL.

4 CEMENT CONCRETE - HEAVY DUTY
NOT TO SCALE

811 Know what's **below.** **Call** before you dig.



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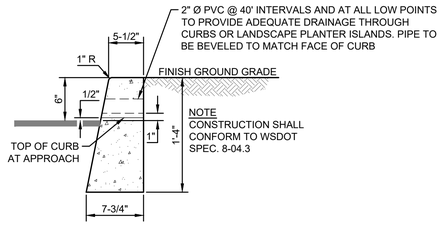
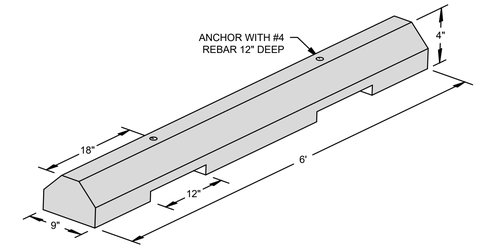
5. EXPANSION JOINTS SHALL BE AT 10' INTERVALS OR AS SHOWN ON THE ARCHITECTURAL PLANS.
6. RECYCLED CONCRETE IS NOT ACCEPTABLE.

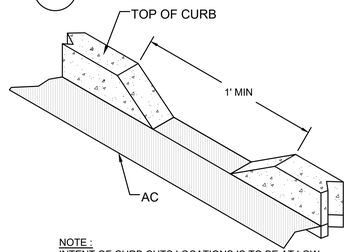
5 INTEGRAL CURB
NOT TO SCALE



6 VERTICAL CURB
NOT TO SCALE

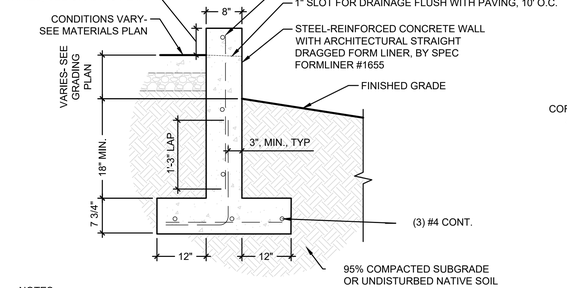


7 CONCRETE WHEEL STOP
NOT TO SCALE



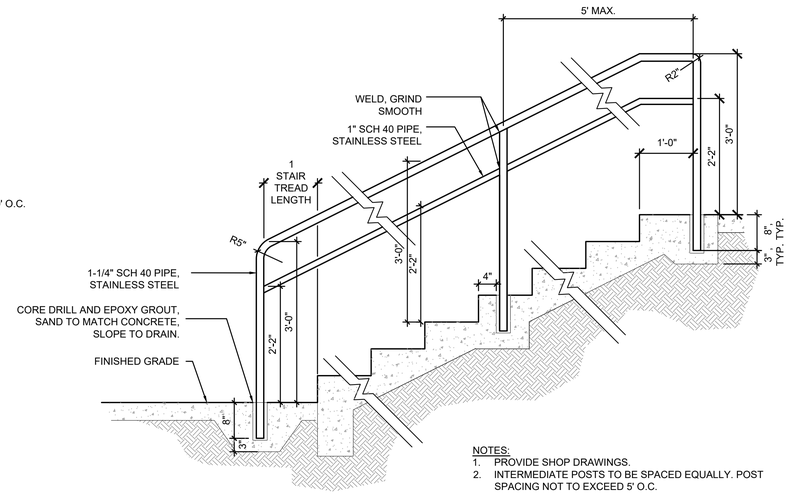
NOTE -
INTENT OF CURB CUTS LOCATIONS IS TO BE AT LOW POINTS OF ASPHALT EDGE TO ENSURE PONDING DOES NOT OCCUR. CONTRACTOR SHALL ADJUST LOCATION IN FIELD AS NECESSARY.

8 CURB CUT
NOT TO SCALE



NOTES:
1. KEEP TOP LEVEL
2. MAX WALL HEIGHT 3'-0", SEE STRUCTURAL FOR WALLS ABOVE 3'-0"
3. WALLS OVER 4'-0" REQUIRE SEPARATE BUILDING PERMIT.

9 CONCRETE RETAINING WALL
NOT TO SCALE



NOTES:
1. PROVIDE SHOP DRAWINGS.
2. INTERMEDIATE POSTS TO BE SPACED EQUALLY. POST SPACING NOT TO EXCEED 5' O.C.

10 CONCRETE STAIRS AND HANDRAILS
NOT TO SCALE

APPROVED

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CITY OF PUYALLUP
DEVELOPMENT ENGINEERING

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02/21/2024

4	
3	
2	
1	01/29/24 CITY COMMENTS

Revisions:

Sheet Title:

PAVING NOTES AND DETAILS

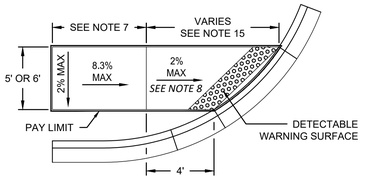
Designed by:	Drawn by:	Checked by:
CW	SK / RS	JI

Sheet No.

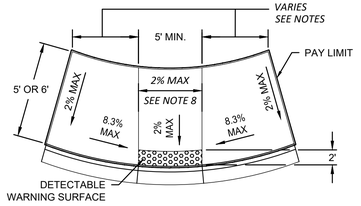
C2.6

9 of 53 Sheets

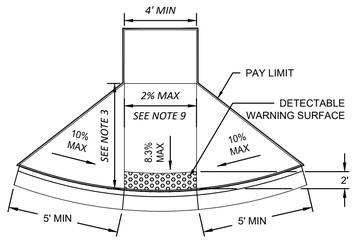
EAST TOWN CROSSING PHASE 1
SEC. 26,35/ TWP. 20 N./ RGE. 4 E., W.M.



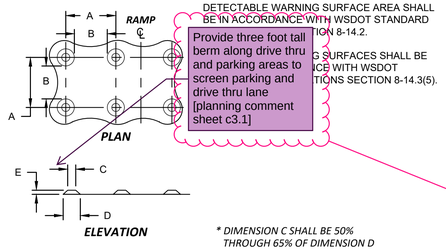
1 SINGLE DIRECTION CURB RAMP
NOT TO SCALE



2 PARALLEL CURB RAMP
NOT TO SCALE



3 PERPENDICULAR CURB RAMP
NOT TO SCALE



DETECTABLE WARNING SURFACE AREA SHALL BE IN ACCORDANCE WITH WSDOT STANDARD
TION 8-14.2.
G SURFACES SHALL BE
CE WITH WSDOT
TIONS SECTION 8-14.3(5).

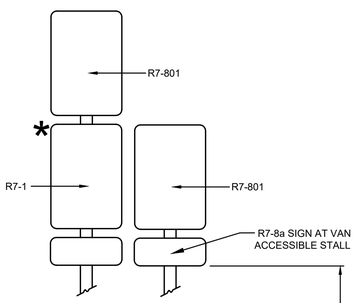
Provide three foot tall berm along drive thru and parking areas to screen parking and drive thru lane [planning comment sheet c3.1]

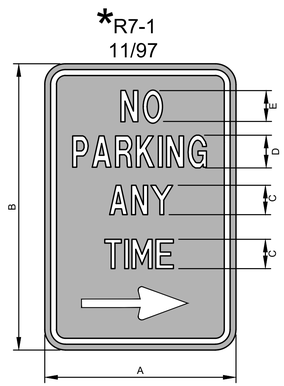
4 DETECTABLE WARNING SURFACE DETAIL
NOT TO SCALE

CURB RAMP NOTES:

1. CURB RAMPS ARE TYPICALLY CENTERED AT THE 1/4 RADIUS POINTS.
2. CURB TO BE FLUSH WITH ADJACENT ROADWAY SURFACE. THE BID ITEM DOES NOT INCLUDE THE CURB AND GUTTER.
3. PERPENDICULAR RAMP LENGTH IS MEASURED FROM BACK OF CURB.
4. PARALLEL RAMP LENGTHS VARY FROM 6' MIN. TO 15' MAX.
5. IF SIGNAL POLE EXISTS, PARALLEL CURB RAMP SHALL INCLUDE THE CONCRETE AREA AROUND THE SIGNAL POLE. SIDEWALK DEPTH SHALL BE 6" FROM PC TO PT. SEE STANDARD DRAWING PC.J1.2 FOR ADDITIONAL DETAILS.
6. ADJUST RAMP LENGTHS TO MEET ADA REQUIREMENTS 8.3% MAX GRADE, 15' MAX LENGTH.
7. SEE WSDOT STANDARD PLAN F-40.16-03 NOTE 8.
8. LANDINGS SHALL HAVE A 2% MAX. GRADE IN EACH DIRECTION, EXCEPT AT MIDBLOCK CROSSINGS WHERE THEY MAY MATCH THE GRADE OF THE ROADWAY.
9. PERPENDICULAR CURB RAMPS SHALL HAVE A 2% MAX. CROSS SLOPE, EXCEPT AT MIDBLOCK CROSSINGS WHERE IT MAY MATCH THE GRADE OF THE ROADWAY.
10. THE ROWS OF TRUNCATED DOMES IN DETECTABLE WARNING SURFACES SHALL BE ALIGNED PERPENDICULAR TO THE GRADE BREAK AT THE BACK OF CURB.
11. CURB RAMPS CANNOT BE PERVIOUS MATERIAL.
12. SEE THE CURRENT EDITION OF WSDOT STANDARD PLAN F-10.12 FOR PEDESTRIAN CURB DETAILS.
13. FOR RESIDENTIAL DRIVEWAY APPROACHES PARALLEL CURB RAMPS SHALL BE 2' MIN. FROM THE DRIVEWAY APPROACH.
14. TO AVOID OBSTACLES, CURB RAMPS OPPOSITE THE RETURNED CURBS AT "T" INTERSECTIONS MAY BE PLACED AT A SKEW OF 5° MAX FROM AN ALIGNMENT PERPENDICULAR TO THE CENTERLINE
15. IF DISTANCE IS LESS THAN 5 FT BETWEEN LANDING AND BACK OF CURB, THE DETECTABLE WARNING STRIP SHALL BE PLACED AT THE BOTTOM OF THE RAMP.

Added berm in front of drive thru area. Due to space limitations, a solid fence is proposed in front of the parking areas. This meets the requirements for Ch 20.30 C Commercial Zones acceptable screening materials of PMC. Landscaping will also be provided





SEE PLANS FOR DESIGNATED LEFT, RIGHT, OR BOTH ARROW

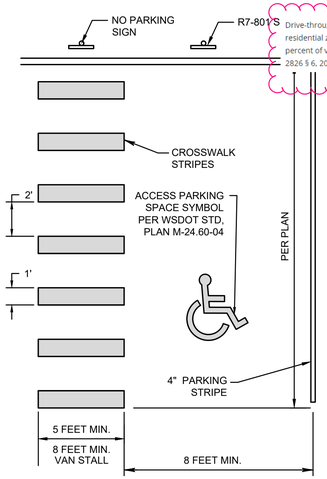
COLORS
LEGEND - RED
BACKGROUND - WHITE (REFL)

DIMENSIONS (INCHES)				
A	B	C	D	E
12	18	2C	3B	2C

NOTE:

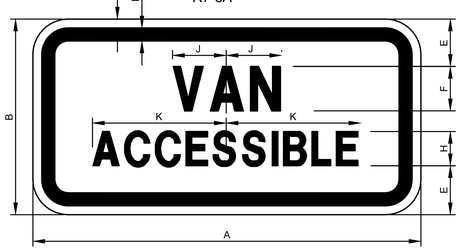
1. PLACE NO PARKING SIGN 12 INCHES BEHIND CURB AT OUTSIDE EDGE OF AISLES

COLORS
LEGEND & BORDER - WHITE (REFL)
SYMBOL - WHITE (REFL)
BACKGROUND - BLUE (REFL)



Drive-through window lanes and facilities shall be oriented away from residential zones, and shall be screened from residential zones and public streets to obscure vehicle headlight from shining directly into public streets or residential zones. Required screening shall be a minimum height of three feet above the grade of the drive, and shall be sufficiently dense to obscure at least 80 percent of vehicle headlights prior to occupancy and use, and 100 percent of vehicle headlights within one year of occupancy and use. Acceptable screening materials shall include the use of building walls, berms, landscaping and/or solid fencing. (Ord. 3073 § 18, 2014; Ord. 2866 § 3, 2006; Ord. 2826 § 6, 2005; Ord. 2694 § 5, 2001; Ord. 2615 § 1, 1999; Ord. 2563 § 1, 1998; Ord. 2454 § 1, 1995; Ord. 2393 § 1, 1994; Ord. 2316 § 1, 1992; Ord. 2196 § 4, 1989; Ord. 2147 Exh. A, 1987).

R7-8A



DIMENSIONS (INCHES)								
A	B	C	D	E	F	G	H	J
12	18	3/8	3/8	2 1/2	2C	2	9	1 1/2

NOTE:

1. PROVIDE VAN ACCESSIBLE STALL SIGN ON STALLS IDENTIFIED AS VAN STALLS.
2. PLACE NO PARKING SIGN 12 INCHES BEHIND CURB AT OUTSIDE EDGE OF AISLES
3. PROVIDE NO PARKING SIGN ON STALL POST IF AISLE LEADS TO RAMP

5 ACCESSIBLE PARKING STALL AND SIGNAGE
NOT TO SCALE

811 Know what's **below.** **Call** before you dig.

APPROVED

BY _____
CITY OF PUYALLUP
DEVELOPMENT ENGINEERING

DATE _____

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THE CITY WILL NOT BE RESPONSIBLE FOR ERRORS AND/OR OMISSIONS ON THESE PLANS.
FIELD CONDITIONS MAY DICTATE CHANGES TO THESE PLANS AS DETERMINED BY THE DEVELOPMENT ENGINEERING MANAGER.

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TACOMA · SEATTLE · SPOKANE · TRI-CITIES
2215 North 30th Street, Suite 300, Tacoma, WA 98403
253.383.2422 TEL 253.383.2572 FAX www.ahbl.com WEB

Project Title:

EAST TOWN CROSSING PHASE 1

Client:
ASH DEVELOPMENT

GREG HELLE

GREG.HELLE@ASHNW.COM

Project No.
2230752

Issue Set & Date:

PERMIT SUBMITTAL

02/20/2024

TODD CHRISTOPHER SAWYER
STATE OF WASHINGTON
46416
REGISTERED
PROFESSIONAL ENGINEER
02/21/2024

A
A
A
A 01/29/24 CITY COMMENTS

Revisions:

Sheet Title:

PAVING NOTES AND DETAILS

Designed by:	Drawn by:	Checked by:
CW	SK / RS	JI

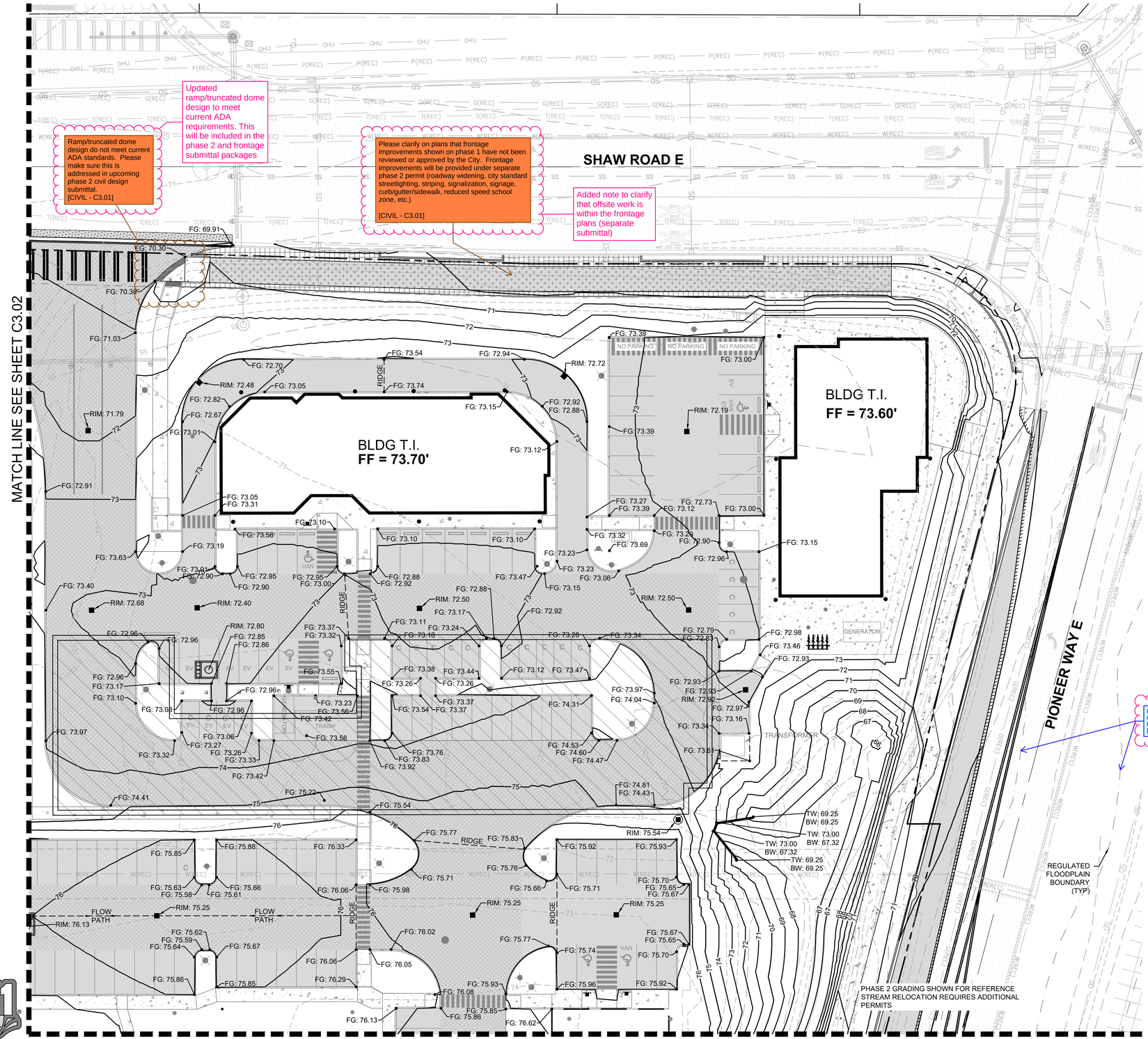
Sheet No.

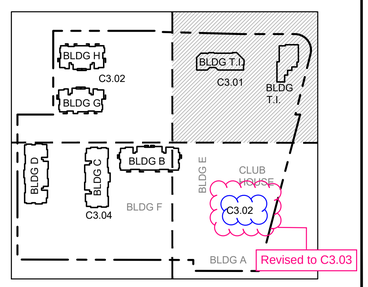
C2.7

10 of 53 Sheets

EAST TOWN CROSSING PHASE 1

SEC. 26,35/ TWP. 20 N./ RGE. 4 E., W.M.





GRAPHIC SCALE
0 10 20 40
1" = 20 FEET

APPROVED

BY _____
CITY OF PUYALLUP
DEVELOPMENT ENGINEERING

DATE _____

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Project Title:

EAST TOWN CROSSING PHASE 1

Client:
ASH DEVELOPMENT
GREG HELLE
GREG.HELLE@ASHNW.COM

Project No.
2230752

Issue Set & Date:
PERMIT SUBMITTAL
02/20/2024

TODD CHRISTOPHER SWAIN — STATE OF WASHINGTON — 46416 — REGISTERED PROFESSIONAL ENGINEER
02/21/2024

A
B
C
1 01/29/24 CITY COMMENTS
Revisions:

Sheet Title:
GRADING PLAN NW

Designed by:	Drawn by:	Checked by:
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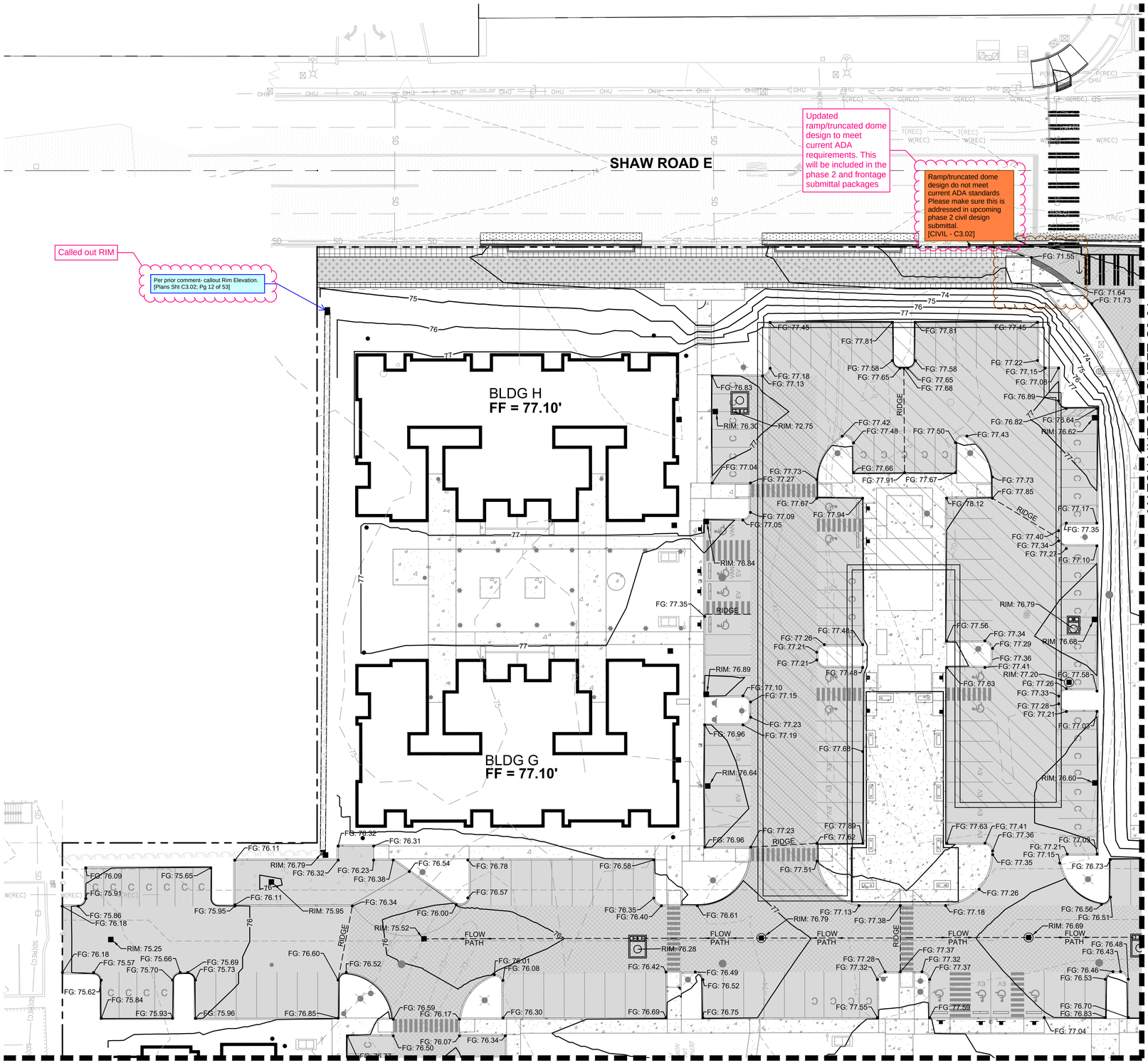
Sheet No.
C3.01
11 of 53 Sheets

811 Know what's **below.** **Call** before you dig.

EAST TOWN CROSSING PHASE 1
SEC. 26,35/ TWP. 20 N./ RGE. 4 E., W.M.



GRAPHIC SCALE
0 10 20 40
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CITY OF PUYALLUP
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Project Title:

EAST TOWN CROSSING PHASE 1

Client:
ASH DEVELOPMENT

GREG HELLE

GREG.HELLE@ASHNW.COM

Project No.
2230752

Issue Set & Date:

PERMIT SUBMITTAL
02/20/2024

TODD CHRISTOPHER SAMUELSON
STATE OF WASHINGTON
22416
REGISTERED
PROFESSIONAL ENGINEER
02/21/2024

A
B
C
1 01/29/24 CITY COMMENTS
Revisions:

Sheet Title:

GRADING PLAN SW

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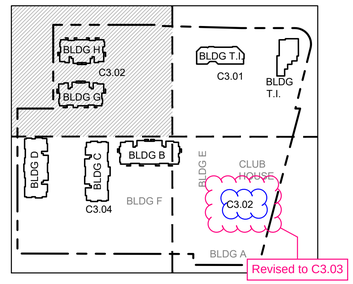
Sheet No.

C3.02

12 of 53 Sheets



811
Know what's **below.**
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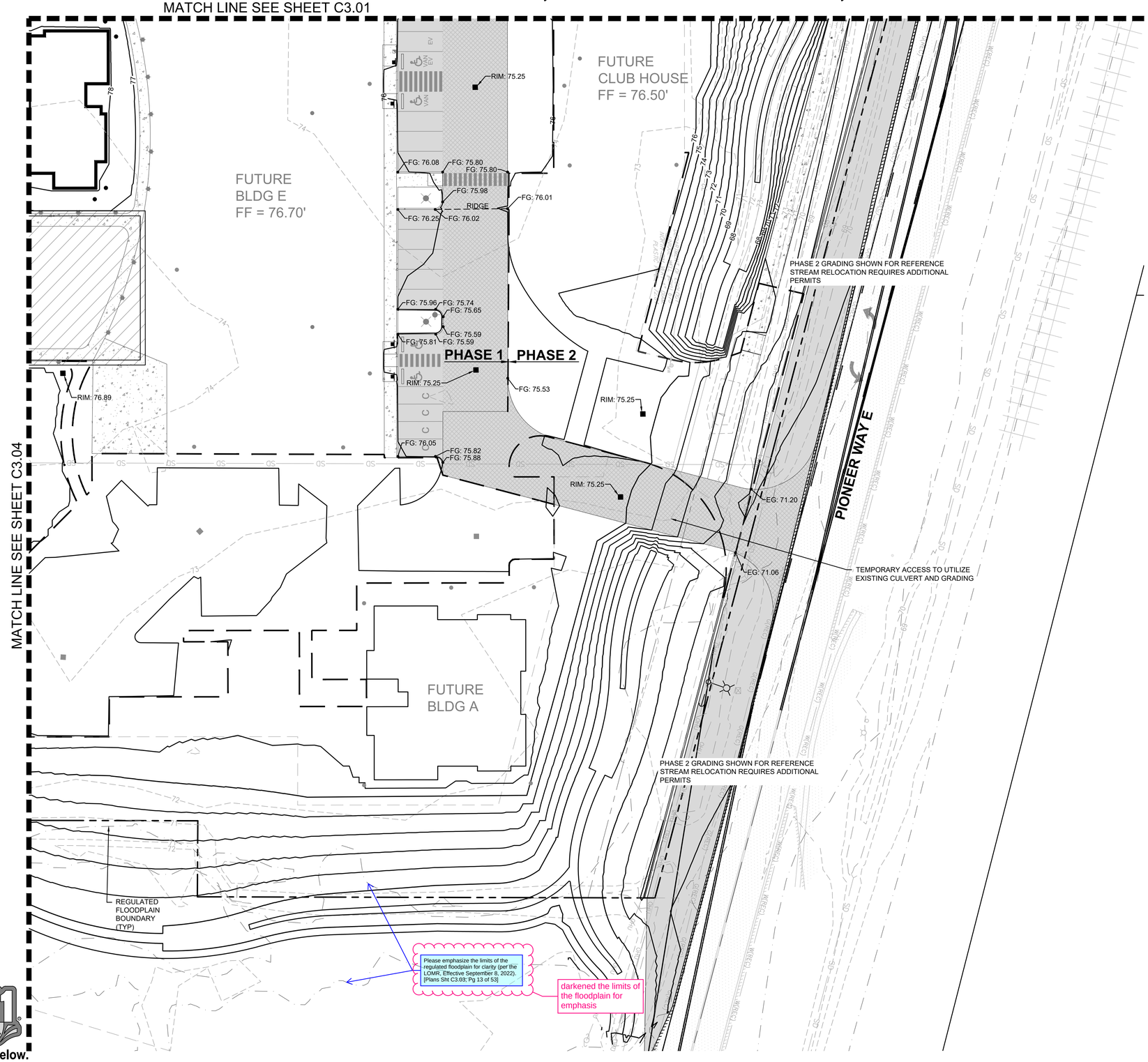
EAST TOWN CROSSING PHASE 1

SEC. 26,35/ TWP. 20 N./ RGE. 4 E., W.M.



GRAPHIC SCALE

0 10 20 40

1" = 20 FEET

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CITY OF PUYALLUP
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253.383.2422 TEL 253.383.2572 FAX www.ahbl.com WEB

Project Title:

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Client:
ASH DEVELOPMENT

GREG HELLE

GREG.HELLE@ASHNW.COM

Project No.
2230752

Issue Set & Date:

PERMIT SUBMITTAL

02/20/2024

TODD CHRISTOPHER SWINT
STATE OF WASHINGTON
22416
REGISTERED PROFESSIONAL ENGINEER
02/21/2024

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△B
△C
△1 01/29/24 CITY COMMENTS

Revisions:

Sheet Title:

GRADING PLAN NE

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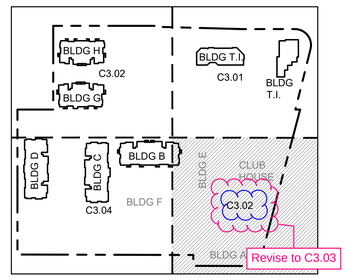
Sheet No.

C3.03

13 of 53 Sheets



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EAST TOWN CROSSING PHASE 1

SEC. 26,35/ TWP. 20 N./ RGE. 4 E., W.M.

MATCH LINE SEE SHEET C3.02

MATCH LINE SEE SHEET C3.03

BLDG D
FF = 77.50'

BLDG C
FF = 76.90'

BLDG B
FF = 78.10'

FUTURE
BLDG F

PHASE 1 | PHASE 2

RIDGE

RIM: 75.40
FG: 75.87
FG: 75.90
FG: 75.92
FG: 76.10
FG: 75.94
FG: 76.12
FG: 75.99
FG: 76.03
FG: 75.95
FG: 75.99
FG: 76.21
FG: 76.26
FG: 76.63
FG: 76.62
FG: 76.25
FG: 75.98
FG: 75.73
FG: 76.00
FG: 75.86
FG: 75.62
RIM: 75.40
FG: 75.95
FG: 76.18
FG: 76.50
FG: 76.29
FG: 76.37
FG: 76.31
FG: 76.06
FG: 76.25
FG: 76.53
FG: 76.56
FG: 76.72
FG: 76.55

Per prior comment: CALLOUT-to protect existing storm drain serving properties to the south. [Plans Sht C3.04; Pg 14 of 53]

Added note to protect existing pipe

Relocated phase line to top of pond

Per prior comment: RELOCATE-Phase line to top of pond. [Plans Sht C3.04; Pg 14 of 53]

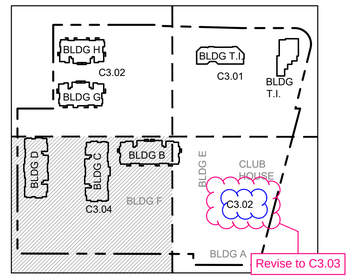
Per prior comment: CALLOUT-Existing storm pond serving properties to the south to be protected and remain in service until Phase 2. [Plans Sht C3.04; Pg 14 of 53]

Added note that storm pond serves south properties and shall be protected / remain in service until Phase 2

Please emphasize the limits of the regulated floodplain for clarity (per the LOMR, Effective September 8, 2022). [Plans Sht C3.04; Pg 14 of 53]

darkened the limits of the floodplain for emphasis

Revise to C3.03



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Project Title:

EAST TOWN CROSSING PHASE 1

Client:
ASH DEVELOPMENT

GREG HELLE

GREG.HELLE@ASHNW.COM

Project No.
2230752

Issue Set & Date:

PERMIT SUBMITTAL
02/20/2024

TODD CHRISTOPHER SWINT
STATE OF WASHINGTON
48416
REGISTERED
PROFESSIONAL ENGINEER
02/21/2024

Revisions:
3
2
1 01/29/24 CITY COMMENTS

Sheet Title:

GRADING PLAN SE

Designed by:	Drawn by:	Checked by:
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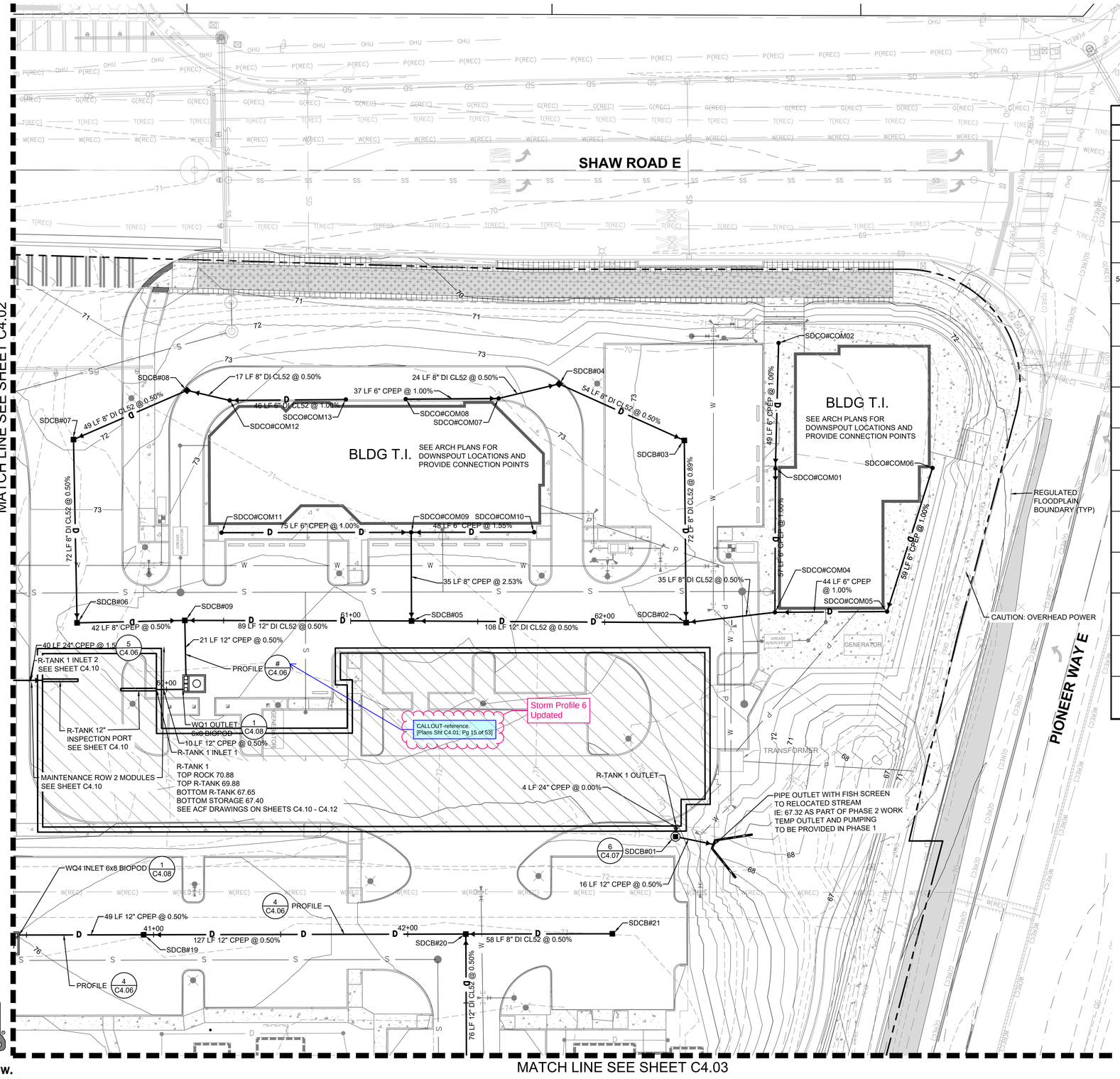
Sheet No.

C3.04

14 of 53 Sheets

EAST TOWN CROSSING PHASE 1

SEC. 26,35/ TWP. 20 N./ RGE. 4 E., W.M.



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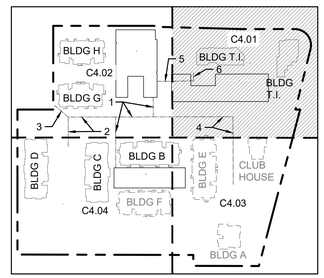
STORM STRUCTURE TABLE		STORM STRUCTURE TABLE	
STRUCTURE NAME	STRUCTURE DETAILS	STRUCTURE NAME	STRUCTURE DETAILS
R-TANK 1 INLET 1 N 679890.39 E 1203965.82	IE = 67.85 (12" N)	SDCB#21 TYPE 1 N 680067.90 E 1204065.38	RIM = 75.25 IE = 71.60 (8" S)
R-TANK 1 INLET 2 N 679845.57 E 1203961.30	IE = 67.79 (24" S)	SDCO#COM01 N 680135.62 E 1203883.57	RIM = 73.56 IE = 70.80 (6" E) IE = 70.80 (6" W)
R-TANK 1 OUTLET N 680093.81 E 1204023.48	IE = 67.40 (24" E)	SDCO#COM02 N 680137.83 E 1203834.23	RIM = 73.51 IE = 71.29 (6" E)
SDCB#01 54" CONTROL STRUCTURE N 680093.51 E 1204027.65	RIM = 75.54 IE = 67.40 (24" W) IE = 67.40 (12" N)	SDCO#COM04 N 680134.35 E 1203940.15	RIM = 73.57 IE = 70.23 (6" N) IE = 70.23 (6" W) IE = 70.06 (8" S)
SDCB#02 TYPE 1 N 680099.34 E 1203943.53	RIM = 72.50 IE = 69.88 (8" W) IE = 69.88 (8" N) IE = 69.50 (12" S)	SDCO#COM05 N 680178.49 E 1203940.71	RIM = 73.56 IE = 70.67 (6" W) IE = 70.67 (6" S)
SDCB#03 TYPE 1 N 680100.00 E 1203871.83	RIM = 72.19 IE = 70.52 (8" E) IE = 70.52 (8" SW)	SDCO#COM06 N 680197.46 E 1203884.56	RIM = 73.56 IE = 71.26 (6" E)
SDCB#04 TYPE 1 N 680051.13 E 1203848.63	RIM = 72.72 IE = 70.79 (8" NE) IE = 70.79 (8" S)	SDCO#COM07 N 680027.25 E 1203853.88	RIM = 73.15 IE = 70.91 (8" N) IE = 71.08 (6" S)
SDCB#05 TYPE 1 N 679991.28 E 1203940.77	RIM = 72.50 IE = 68.96 (12" S) IE = 69.29 (8" W) IE = 68.96 (12" N)	SDCO#COM08 N 679990.68 E 1203853.44	RIM = 73.68 IE = 71.45 (6" N)
SDCB#06 TYPE 1 N 679859.67 E 1203938.96	RIM = 72.68 IE = 69.06 (8" W) IE = 69.06 (8" N)	SDCO#COM09 N 679991.81 E 1203905.90	RIM = 73.64 IE = 70.17 (8" E) IE = 70.34 (6" N) IE = 70.34 (6" S)
SDCB#07 TYPE 1 N 679859.67 E 1203866.80	RIM = 71.79 IE = 69.42 (8" E) IE = 69.42 (8" N)	SDCO#COM10 N 680040.22 E 1203906.79	RIM = 73.64 IE = 71.09 (6" S)
SDCB#08 TYPE 1 N 679904.68 E 1203848.32	RIM = 72.48 IE = 69.67 (8" N) IE = 69.67 (8" S)	SDCO#COM11 N 679917.20 E 1203904.57	RIM = 73.61 IE = 71.09 (6" N)
SDCB#09 TYPE 1 N 679902.08 E 1203938.82	RIM = 72.40 IE = 68.84 (8" S) IE = 68.51 (12" N) IE = 68.51 (12" E)	SDCO#COM12 N 679921.42 E 1203852.60	RIM = 72.88 IE = 69.93 (6" N) IE = 69.76 (8" S)
SDCB#19 TYPE 1 N 679883.48 E 1204062.20	RIM = 75.25 IE = 70.35 (12" S) IE = 70.35 (12" N)	SDCO#COM13 N 679967.13 E 1203853.13	RIM = 73.57 IE = 70.39 (6" S)
SDCB#20 TYPE 1 N 680010.25 E 1204064.38	RIM = 75.25 IE = 70.98 (12" S) IE = 71.31 (8" N) IE = 70.98 (12" E)		

DETAIL REFERENCES

CATCH BASIN TYPE 1 (AREA DRAIN) 1 C4.07
CATCH BASIN TYPE 1(GUTTER DRAIN) 2 C4.07
FOR CATCH BASIN TYPE II 3 C4.07
FRENCH DRAIN 5 C4.07
STORM SEWER MANHOLE 8 C4.07



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Project Title:

EAST TOWN CROSSING PHASE 1

Client:

ASH DEVELOPMENT

GREG HELLE

GREG.HELLE@ASHNW.COM

Project No.

2230752

Issue Set & Date:

PERMIT SUBMITTAL

02/20/2024

TODD CHRISTOPHER SAWYER — STATE OF WASHINGTON — 24016 — REGISTERED PROFESSIONAL ENGINEER — 02/21/2024

Revisions:

1 01/29/24 CITY COMMENTS

Sheet Title:

STORM DRAINAGE PLAN NW

Designed by:	Drawn by:	Checked by:
CW	SK / RS	JI

Sheet No.

C4.01

15 of 53 Sheets

EAST TOWN CROSSING PHASE 1

SEC. 26,35/ TWP. 20 N./ RGE. 4 E., W.M.

GRAPHIC SCALE

0 10 20 40

1" = 20 FEET

APPROVED

BY _____
CITY OF PUYALLUP
DEVELOPMENT ENGINEERING

DATE _____

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STORM STRUCTURE TABLE	
STRUCTURE NAME	STRUCTURE DETAILS
AREA DRAIN G1 TYPE 1 N 679651.27 E 1203988.13	RIM = 77.13 IE = 73.07 (6" NE)
AREA DRAIN G2 TYPE 1 N 679648.92 E 1203945.32	RIM = 77.43 IE = 72.78 (6" S) IE = 72.78 (8" NE)
AREA DRAIN H1 TYPE 1 N 679654.11 E 1203854.54	RIM = 77.10 IE = 72.33 (6" N)
AREA DRAIN H2 TYPE 1 N 679651.43 E 1203896.03	RIM = 77.04 IE = 72.58 (6" S) IE = 72.58 (8" N)
R-TANK 2 INLET 1 N 679799.41 E 1203935.82	IE = 68.87 (12" N)
R-TANK 2 INLET 2 N 679687.01 E 1203851.93	IE = 68.87 (12" S)
R-TANK 2 INLET 3 N 679788.39 E 1204007.57	IE = 68.40 (24" E)
R-TANK 2 OUTLET N 679800.24 E 1203960.54	IE = 68.40 (24" N)
SDCB#10 54" CONTROL STRUCTURE N 679805.24 E 1203960.64	RIM = 77.20 IE = 68.40 (24" S) IE = 68.40 (24" N)
SDCB#11 TYPE 1 N 679815.72 E 1203936.19	RIM = 76.68 IE = 71.81 (8" W) IE = 71.81 (8" E) IE = 71.48 (12" S)
SDCB#12 TYPE 1 N 679814.62 E 1204000.39	RIM = 76.60 IE = 72.45 (8" W)
SDCB#13 TYPE 1 N 679817.31 E 1203857.02	RIM = 76.62 IE = 72.60 (8" E)
SDCB#14 TYPE 1 N 679664.01 E 1203894.81	RIM = 76.84 IE = 71.89 (12" W) IE = 72.22 (8" S) IE = 71.89 (12" E)
SDCB#15 TYPE 1 N 679668.39 E 1203851.68	RIM = 76.30 IE = 71.68 (12" E) IE = 72.18 (6" SW) IE = 71.68 (12" N) IE = 72.18 (6" S)
SDCB#16 TYPE 1 N 679662.74 E 1203962.56	RIM = 76.89 IE = 72.57 (8" E) IE = 72.23 (12" W) IE = 72.56 (8" SW)

STORM STRUCTURE TABLE	
STRUCTURE NAME	STRUCTURE DETAILS
SDCB#17 TYPE 1 N 679662.59 E 1203998.62	RIM = 76.64 IE = 72.75 (8" W) IE = 72.92 (6" SE) IE = 72.92 (6" SW)
SDCB#18 48" TYPE 2 SOLID LOCKING LID N 679787.40 E 1204060.54	RIM = 76.69 IE = 69.40 (12" N) IE = 69.73 (6" E) IE = 68.40 (24" S) IE = 68.40 (24" W)
SDCB#26 48" TYPE 2 SOLID LOCKING LID N 679682.46 E 1204058.73	RIM = 76.79 IE = 69.40 (12" S) IE = 68.40 (24" E) IE = 68.40 (24" N)
SDCB#27 TYPE 1 N 679550.01 E 1204056.45	RIM = 75.52 IE = 71.54 (8" S) IE = 71.20 (12" N) IE = 71.20 (12" SW) IE = 71.20 (12" E)
SDCB#28 TYPE 1 N 679427.04 E 1204054.32	RIM = 75.25 IE = 72.15 (8" N) IE = 72.15 (8" E)
SDCB#40 TYPE 1 N 679510.96 E 1204021.83	RIM = 76.79 IE = 72.24 (12" NE)
SDCO#D6 N 679489.70 E 1204094.51	RIM = 77.38 IE = 73.89 (6" NE)
SDCO#G2 N 679528.62 E 1203943.63	RIM = 76.99 IE = 73.98 (6" N)
SDCO#G3 N 679648.60 E 1204018.45	RIM = 77.18 IE = 73.16 (6" S) IE = 73.16 (6" NW)
SDCO#G4 N 679526.72 E 1204016.45	RIM = 76.92 IE = 74.38 (6" N)
SDCO#H3 N 679530.60 E 1203894.55	RIM = 76.96 IE = 73.73 (6" N)
SDCO#H4 N 679657.42 E 1203829.56	RIM = 77.17 IE = 72.79 (6" SW) IE = 72.79 (6" NE)
SDCO#H5 N 679644.87 E 1203821.38	RIM = 75.92 IE = 72.94 (6" S) IE = 72.94 (6" NE)
SDCO#H6 N 679532.54 E 1203820.38	RIM = 76.55 IE = 74.06 (6" N)

SHAW ROAD E

BLDG H

BLDG G

SDCB#39
N 679516.88
E 1203809.79
RIM: 75.18

112 LF 6" CPEP @ 1.00%

15 LF 6" CPEP @ 1.00%

15 LF 6" CPEP @ 1.00%

AREA DRAIN H1

121 LF 6" CPEP @ 0.95%

13 LF 8" CPEP @ 2.79%

AREA DRAIN H2

68 LF 12" CPEP @ 0.50%

120 LF 6" CPEP @ 1.00%

AREA DRAIN G2

22 LF 8" CPEP @ 1.00%

36 LF 8" CPEP @ 0.51%

AREA DRAIN G1

15 LF 6" CPEP @ 1.00%

122 LF 6" CPEP @ 1.00%

24 LF 8" CPEP @ 1.00%

25 LF 6" CPEP @ 2.47%

7 LF 12" CPEP @ 0.50%

WQ#3 INLET

R-TANK 2 INLET 2

MAINTENANCE ROW 1 MODULES
SEE SHEET C4.20

R-TANK 12" INSPECTION PORT
SEE SHEET C4.20

5 LF 12" CPEP @ 11.18%

43 LF 12" CPEP @ 0.50%

R-TANK #2
TOP ROCK 75.23
TOP R-TANK 74.23
BOTTOM R-TANK 68.65
SEE ACF DRAWINGS ON SHEETS C4.20 - C4.23

79 LF 8" CPEP @ 1.00%

8 LF 12" CPEP @ 2.00%

WQ#2 INLET

R-TANK 2 INLET 1

50+00

R-TANK 2 OUTLET

5 LF 24" CPEP @ 0.00%

R-TANK 2 INLET 3

53 LF 24" CPEP @ 0.00%

64 LF 8" CPEP @ 1.00%

40 LF 12" CPEP @ 0.50%

45 LF 12" CPEP @ 2.00%

127 LF 24" CPEP @ 0.00%

49 LF 8" CPEP @ 9.00%

82 LF 12" CPEP @ 0.63%

6 LF 6" CPEP @ 1.00%

48 LF 8" CPEP

123 LF 8" CPEP @ 0.50%

62 LF 12" CPEP @ 2.00%

SDCO#H6 · SDCO#H5 · SDCO#H4 · SDCO#H3 · SDCO#G2 · SDCO#G3 · SDCO#G4 · SDCO#D6 · SDCO#D5 · SDCO#D1

SDCB#13 · SDCB#14 · SDCB#16 · SDCB#17 · SDCB#11 · SDCB#10 · SDCB#12 · SDCB#26 · SDCB#27 · SDCB#28 · SDCB#40 · SDCB#18

FRENCH DRAIN (5 C4.07)

WQ5 INLET 6x8 BIOPOD (1 C4.08)

PROFILE (# C4.05)

MATCH LINE SEE SHEET C4.01

MATCH LINE SEE SHEET C4.04

VERIFY-Invert vs pipe slope.
[Plans Sht C4.02; Pg 16 of 53]

Revised slope

Storm Profile 3 Updated

CALLOUT-reference.
[Plans Sht C4.02; Pg 16 of 53]

Per prior comment-Provide utility crossing information.
[Plans Sht C4.02; Pg 16 of 53]

Added crossing information

Moved structure info to this sheet

FYI- structure info called out on Sht C4.04.
[Plans Sht C4.02; Pg 16 of 53]

Storm Profile 1 and 2 Updated

Storm Profile 1 Updated

Revised to match
74.77
73.77

VERIFY-These are RTank 3 values and do not agree with the ACF RTank 2 elevations.
[Plans Sht C4.02; Pg 16 of 53]

Per prior comment-Provide utility crossing information.
[Plans Sht C4.02; Pg 16 of 53]

Provided crossing information

Added alignment linework for clarity

Large pipe is for overflow events (storms above those designed for) to allow water to leave the system without damaging the R-Tanks

VERIFY-Is it necessary to have such a large pipe into and out of the control structure?
[Plans Sht C4.02; Pg 16 of 53]

VERIFY-Pipe slope vs invert.
[Plans Sht C4.02; Pg 16 of 53]

Revised slope

DETAIL REFERENCES

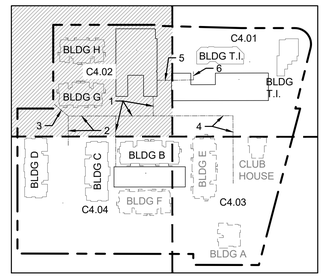
CATCH BASIN TYPE 1 (AREA DRAIN) (1 C4.07 / 2 C4.07)

CATCH BASIN TYPE 1(GUTTER DRAIN) (3 C4.07)

FOR CATCH BASIN TYPE II (5 C4.07)

FRENCH DRAIN (8 C4.07)

STORM SEWER MANIFOLD



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Project Title:

EAST TOWN CROSSING PHASE 1

Client:

ASH DEVELOPMENT

GREG HELLE

GREG.HELLE@ASHNW.COM

Project No.

2230752

Issue Set & Date:

PERMIT SUBMITTAL

02/20/2024

TODD CHRISTOPHER SWINT · STATE OF WASHINGTON · 24416 · REGISTERED PROFESSIONAL ENGINEER
02/21/2024

A

A

A

A 01/29/24 CITY COMMENTS

Revisions:

Sheet Title:

STORM DRAINAGE PLAN SW

Designed by:	Drawn by:	Checked by:
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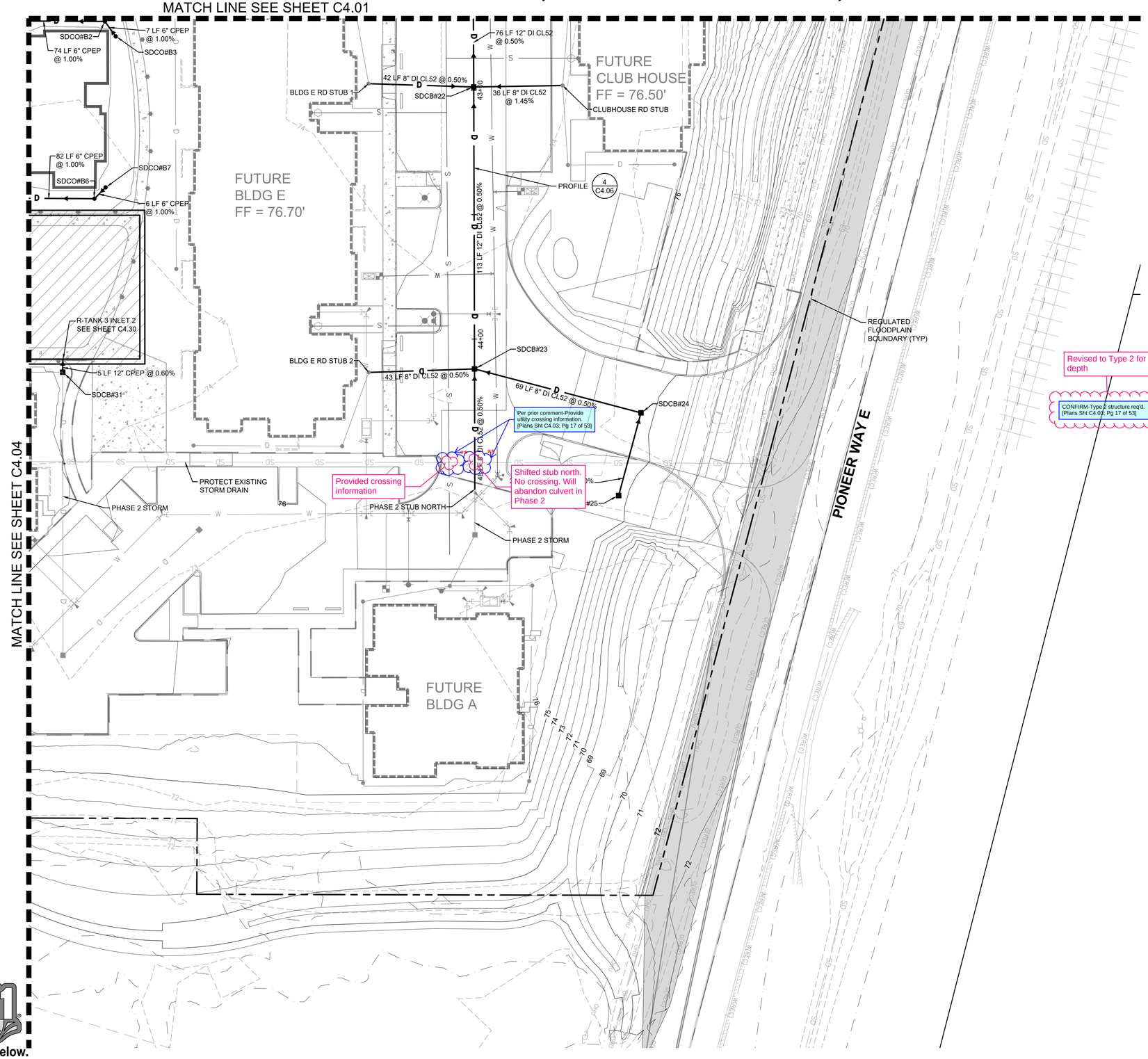
Sheet No.

C4.02

16 of 53 Sheets

EAST TOWN CROSSING PHASE 1
SEC. 26,35/ TWP. 20 N./ RGE. 4 E., W.M.



GRAPHIC SCALE
0 10 20 40
1" = 20 FEET

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DATE _____

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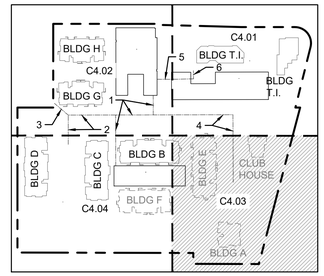
STORM STRUCTURE TABLE	
STRUCTURE NAME	STRUCTURE DETAILS
R-TANK 3 INLET 2 N 679841.90 E 1204246.34	IE = 70.22 (12" E)
SDCB#22 TYPE 1 N 680009.17 E 1204140.15	RIM = 75.25 IE = 71.36 (12" E) IE = 71.36 (12" W) IE = 71.69 (8" N) IE = 71.69 (8" S)
SDCB#23 TYPE 1 N 680007.27 E 1204253.48	RIM = 75.25 IE = 71.93 (12" W) IE = 72.26 (8" N) IE = 72.26 (8" E) IE = 72.26 (8" S)
SDCB#24 TYPE 1 W/ SOLID LOCKING LID N 680073.82 E 1204272.43	RIM = 75.25 IE = 72.61 (8" E) IE = 72.61 (8" S)
SDCB#25 TYPE 1 N 680064.22 E 1204305.52	RIM = 75.25 IE = 72.79 (8" W)
SDCB#31 AREA DRAIN N 679841.75 E 1204251.59	RIM = 76.89 IE = 70.25 (12" W)
SDCO#B2 N 679861.46 E 1204110.92	RIM = 77.68 IE = 75.01 (6" NE) IE = 75.01 (6" S)
SDCO#B3 N 679865.69 E 1204117.04	RIM = 77.64 IE = 75.08 (6" SW)
SDCO#B6 N 679855.88 E 1204182.08	RIM = 77.58 IE = 72.81 (6" S) IE = 72.81 (6" NW)
SDCO#B7 N 679860.43 E 1204177.64	RIM = 77.80 IE = 72.87 (6" SE)

DETAIL REFERENCES

CATCH BASIN TYPE 1 (AREA DRAIN) 1 C4.07
CATCH BASIN TYPE 1(GUTTER DRAIN) 2 C4.07
FOR CATCH BASIN TYPE II 3 C4.07
FRENCH DRAIN 5 C4.07
STORM SEWER MANHOLE 8 C4.07



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Project Title:

EAST TOWN CROSSING PHASE 1

Client:
ASH DEVELOPMENT
GREG HELLE
GREG.HELLE@ASHNW.COM

Project No.
2230752

Issue Set & Date:
PERMIT SUBMITTAL
02/20/2024

TODD CHRISTOPHER SHANT
STATE OF WASHINGTON
4C416
REGISTERED
PROFESSIONAL ENGINEER
02/21/2024

Revisions:
1 01/29/24 CITY COMMENTS
2
3
4

Sheet Title:
STORM DRAINAGE PLAN NE

Designed by:	Drawn by:	Checked by:
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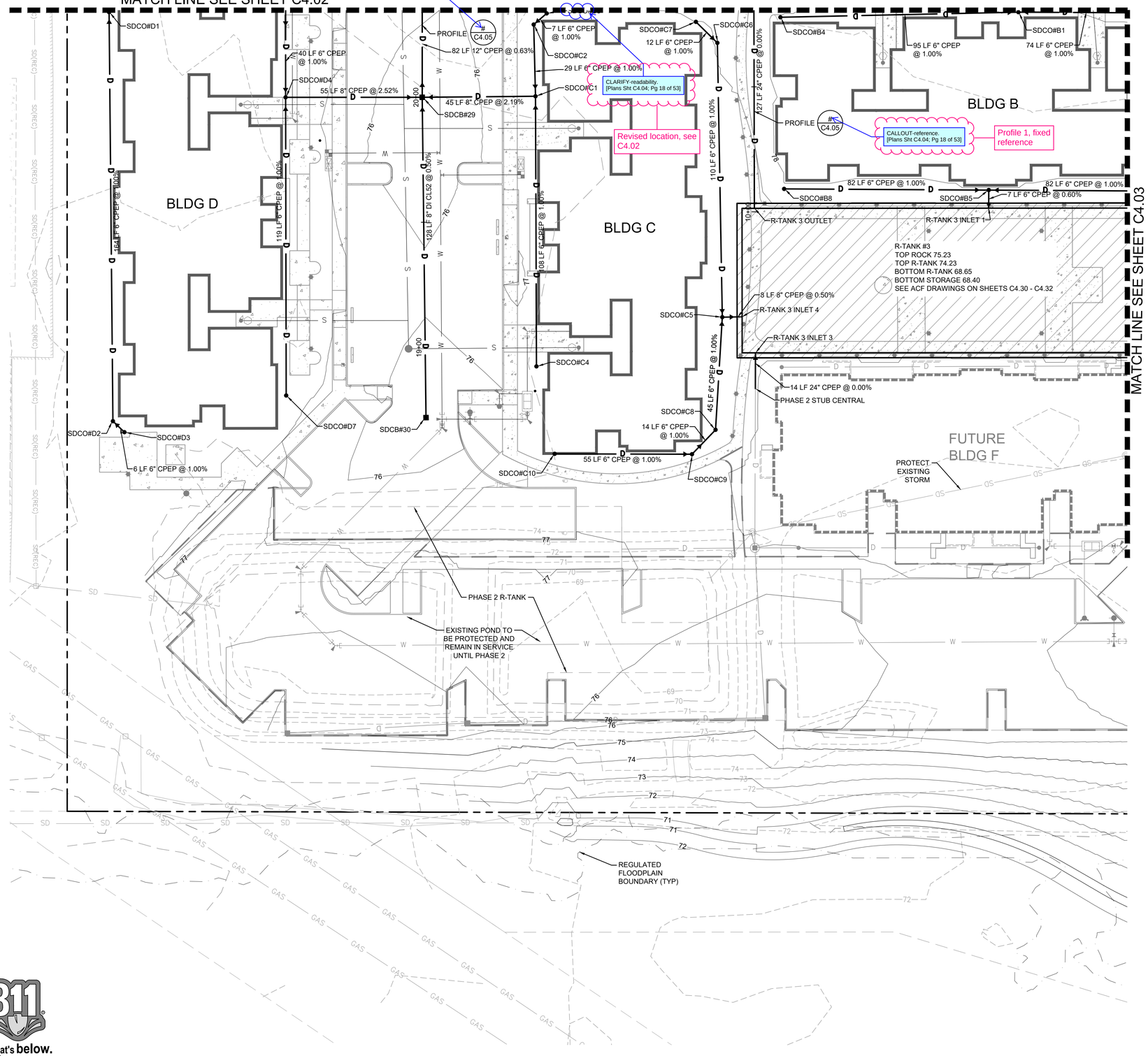
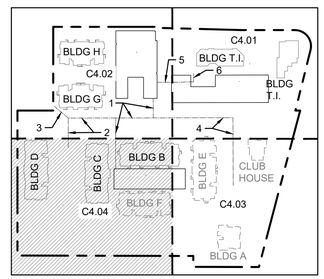
Sheet No.
C4.03
17 of 53 Sheets

EAST TOWN CROSSING PHASE 1
SEC. 26,35/ TWP. 20 N./ RGE. 4 E., W.M.





STORM STRUCTURE TABLE	
STRUCTURE NAME	STRUCTURE DETAILS
R-TANK 3 INLET 1 N 679773.94 E 1204187.21	IE = 71.95 (6" W)
R-TANK 3 INLET 3 N 679679.59 E 1204243.29	RIM = 70.56 IE = 68.40 (24" E)
R-TANK 3 INLET 4 N 679674.54 E 1204228.76	RIM = 72.15 IE = 71.40 (8" S)
R-TANK 3 OUTLET N 679680.28 E 1204185.47	RIM = 70.56 IE = 68.40 (24" W)
SDCB#29 TYPE 1 N 679548.37 E 1204138.49	RIM = 75.40 IE = 72.05 (8" E) IE = 72.05 (8" S) IE = 72.05 (8" N) IE = 71.72 (12" W)
SDCB#30 TYPE 1 N 679547.41 E 1204266.63	RIM = 75.40 IE = 72.69 (8" W)
SDCO#B1 N 679787.35 E 1204109.08	RIM = 78.02 IE = 74.27 (6" S) IE = 74.27 (6" N) IE = 74.10 (8" W)
SDCO#B4 N 679692.17 E 1204109.27	RIM = 78.03 IE = 75.22 (6" N)
SDCO#B5 N 679774.10 E 1204180.01	RIM = 77.85 IE = 71.99 (6" S) IE = 71.99 (6" N) IE = 71.99 (6" E)
SDCO#B8 N 679692.33 E 1204177.94	RIM = 77.71 IE = 72.81 (6" N)
SDCO#C1 N 679593.67 E 1204138.96	RIM = 76.84 IE = 73.21 (6" W) IE = 73.21 (6" E) IE = 73.04 (8" S)
SDCO#C2 N 679593.50 E 1204110.27	RIM = 76.86 IE = 73.50 (6" NW) IE = 73.50 (6" E)
SDCO#C3 N 679598.79 E 1204105.90	RIM = 76.90 IE = 73.57 (6" SE)

STORM STRUCTURE TABLE	
STRUCTURE NAME	STRUCTURE DETAILS
SDCO#C4 N 679591.95 E 1204247.00	RIM = 76.81 IE = 74.29 (6" W)
SDCO#C5 N 679666.61 E 1204228.76	RIM = 76.86 IE = 71.74 (6" E) IE = 71.44 (6" W) IE = 71.44 (8" N)
SDCO#C6 N 679666.78 E 1204119.03	RIM = 77.04 IE = 72.54 (6" E) IE = 72.54 (6" SW)
SDCO#C7 N 679658.37 E 1204110.45	RIM = 77.00 IE = 72.66 (6" NE)
SDCO#C8 N 679663.03 E 1204273.76	RIM = 76.87 IE = 72.19 (6" W) IE = 72.19 (6" SE)
SDCO#C9 N 679653.44 E 1204283.32	RIM = 76.86 IE = 72.33 (6" NW) IE = 72.33 (6" S)
SDCO#C10 N 679598.55 E 1204282.11	RIM = 76.90 IE = 72.88 (6" N)
SDCO#D1 N 679423.88 E 1204102.02	RIM = 77.25 IE = 73.01 (6" E) IE = 72.84 (8" W)
SDCO#D2 N 679422.23 E 1204265.61	RIM = 77.29 IE = 74.65 (6" NE) IE = 74.65 (6" W)
SDCO#D3 N 679426.74 E 1204270.10	RIM = 77.43 IE = 74.71 (6" SW)
SDCO#D4 N 679493.77 E 1204137.44	RIM = 77.45 IE = 73.43 (6" E) IE = 73.43 (6" W) IE = 73.43 (8" N)
SDCO#D5 N 679494.55 E 1204097.47	RIM = 77.41 IE = 73.83 (6" SW) IE = 73.83 (6" E)
SDCO#D7 N 679491.69 E 1204256.70	RIM = 77.38 IE = 74.62 (6" W)

DETAIL REFERENCES

CATCH BASIN TYPE 1 (AREA DRAIN) 1 C4.07
CATCH BASIN TYPE 1(GUTTER DRAIN) 2 C4.07
FOR CATCH BASIN TYPE II 3 C4.07
FRENCH DRAIN 5 C4.07
STORM SEWER MANHOLE 8 C4.07

FYI- structure not shown on this sheet. Called out on Sht C4.02. [Plans Sht C4.04; Pg 18 of 53]

Updated structure tables

GRAPHIC SCALE
0 10 20 40
1" = 20 FEET

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Project Title:
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Client:
ASH DEVELOPMENT
GREG HELLE
GREG.HELLE@ASHNW.COM

Project No.
2230752

Issue Set & Date:
PERMIT SUBMITTAL
02/20/2024

TODD CHRISTOPHER SWAIN
STATE OF WASHINGTON
22416
REGISTERED
PROFESSIONAL ENGINEER
02/21/2024

A
B
C
1 01/29/24 CITY COMMENTS
Revisions:

Sheet Title:
STORM DRAINAGE PLAN SE

Designed by:	Drawn by:	Checked by:
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C4.04
18 of 53 Sheets

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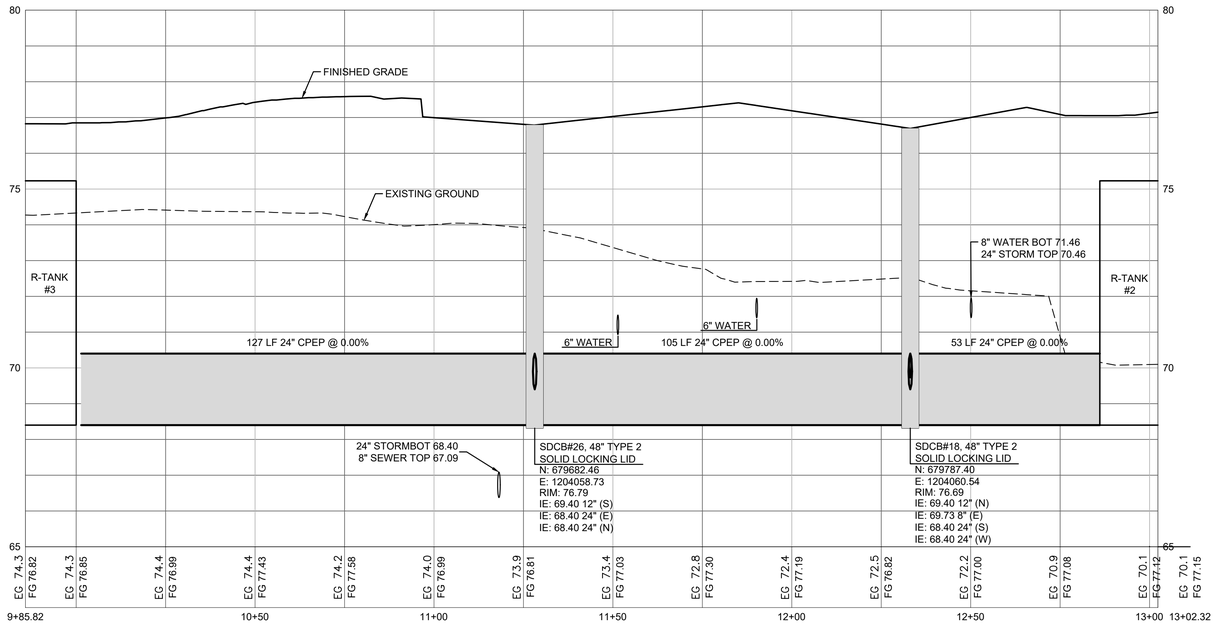
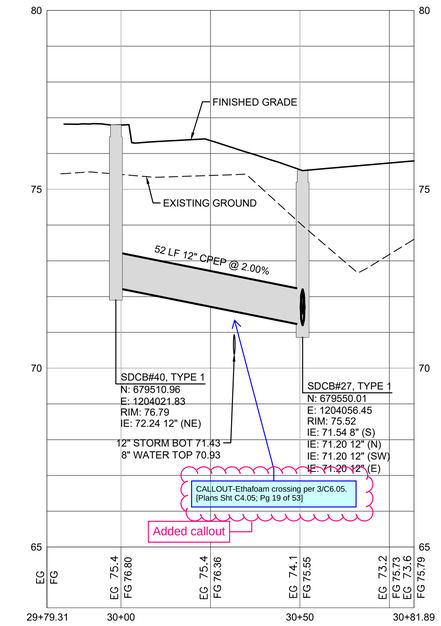
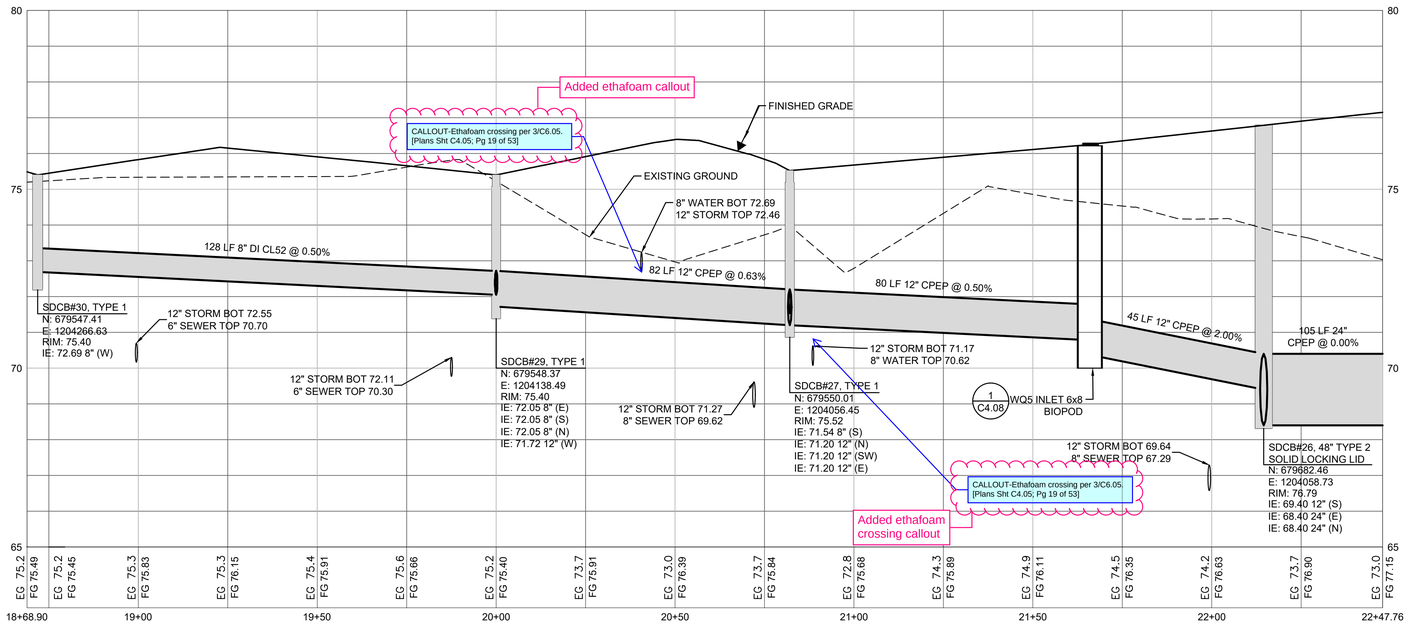


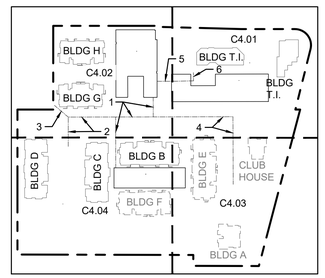
1 STORM PROFILE
SCALE: HORIZ 1"=20'; VERT 1"=2'



2 STORM PROFILE
SCALE: HORIZ 1"=20'; VERT 1"=2'



3 STORM PROFILE
SCALE: HORIZ 1"=20'; VERT 1"=2'



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GREG.HELLE@ASHNW.COM

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02/20/2024

TODD CHRISTOPHER SWAIN — STATE OF WASHINGTON — 40416 — REGISTERED PROFESSIONAL ENGINEER
02/21/2024

3
2
1 01/29/24 CITY COMMENTS
Revisions:

Sheet Title:
STORM PROFILES

Designed by:	Drawn by:	Checked by:
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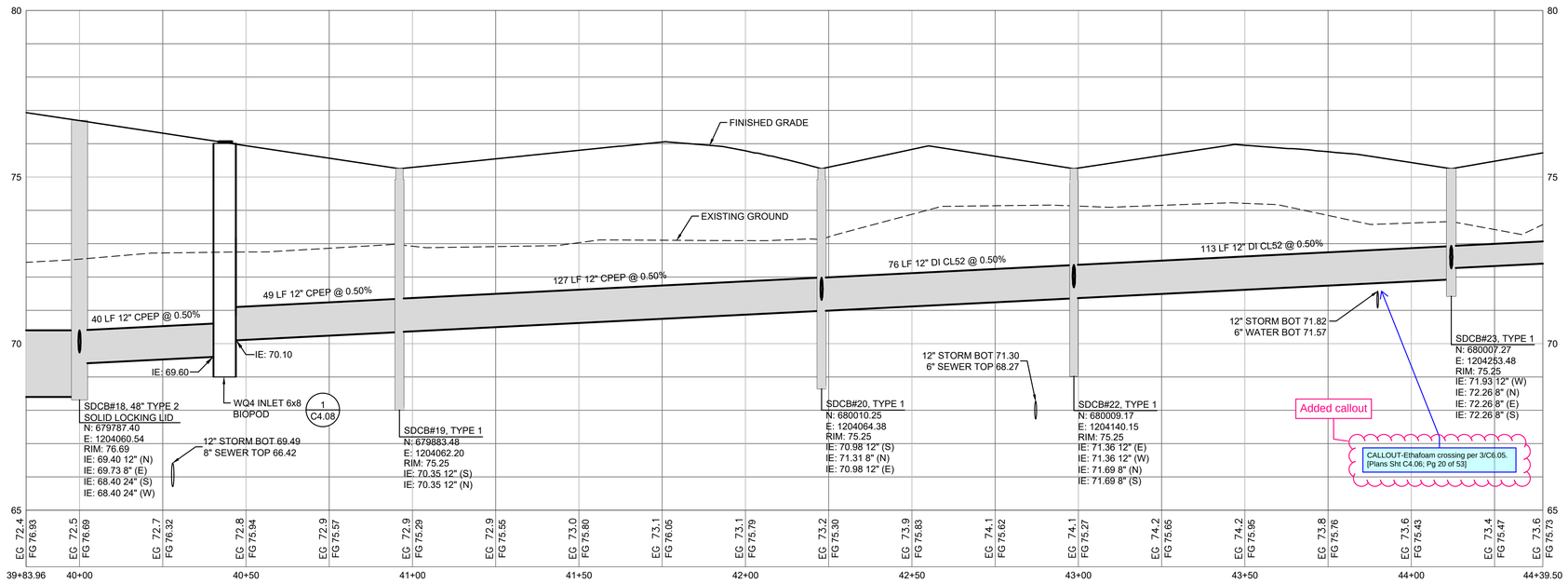
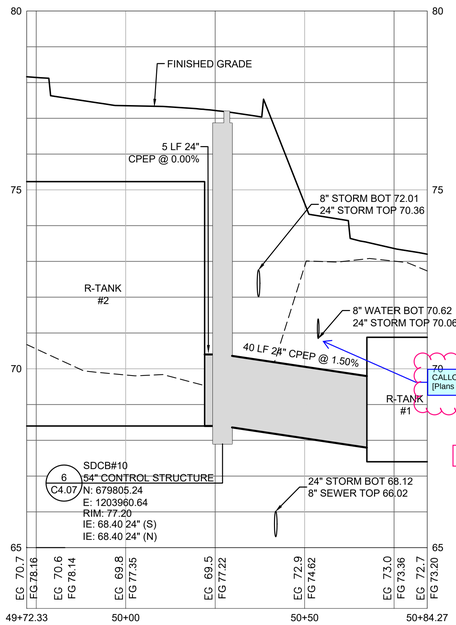
Sheet No.
C4.05
19 of 53 Sheets

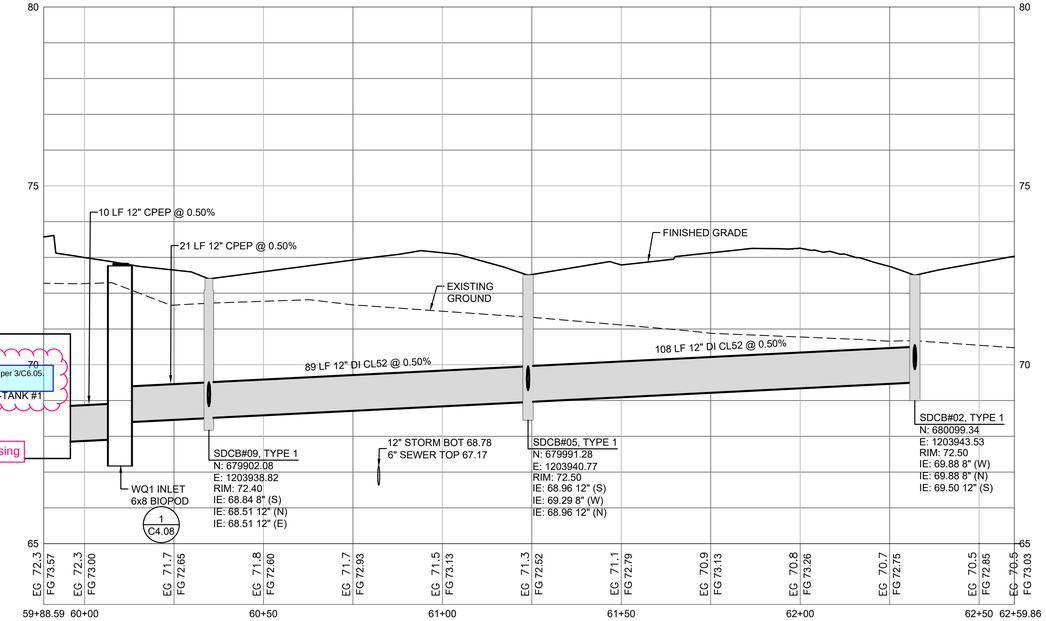
EAST TOWN CROSSING PHASE 1
SEC. 26,35/ TWP. 20 N./ RGE. 4 E., W.M.



4 STORM PROFILE
SCALE: HORIZ 1"=20'; VERT 1"=2'

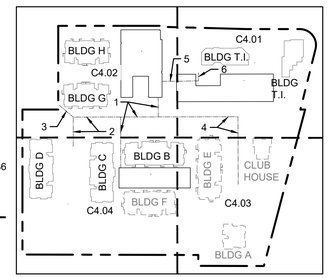


5 STORM PROFILE
SCALE: HORIZ 1"=20'; VERT 1"=2'



STORM PROFILE
SCALE: HORIZ 1"=20'; VERT 1"=2'

CALLOUT-reference. [Plans Sht C4.06; Pg 20 of 53] → 6 fixed broken reference



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4
3
2
1 01/29/24 CITY COMMENTS

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C4.06

20 of 53 Sheets

EAST TOWN CROSSING PHASE 1

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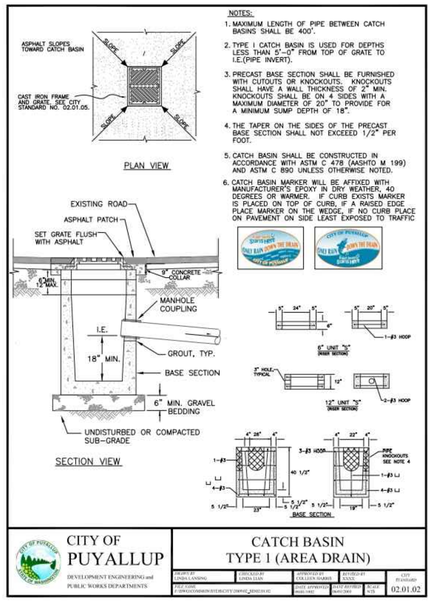
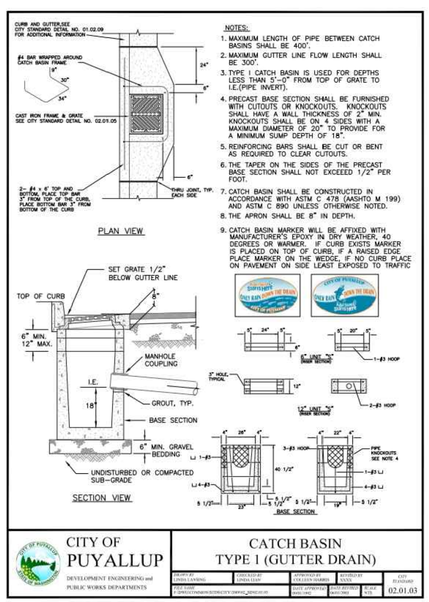


CITY OF PUYALLUP — DEVELOPMENT ENGINEERING and PUBLIC WORKS DEPARTMENTS

CATCH BASIN TYPE 1 (AREA DRAIN) — STANDARD NO. 02.01.02

CATCH BASIN TYPE 1 (AREA DRAIN)

1 NOT TO SCALE

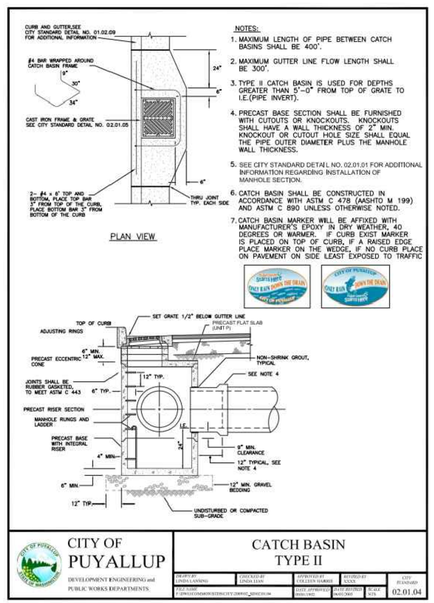


CITY OF PUYALLUP — DEVELOPMENT ENGINEERING and PUBLIC WORKS DEPARTMENTS

CATCH BASIN TYPE 1 (GUTTER DRAIN) — STANDARD NO. 02.01.03

CATCH BASIN TYPE 1 (GUTTER DRAIN)

2 NOT TO SCALE

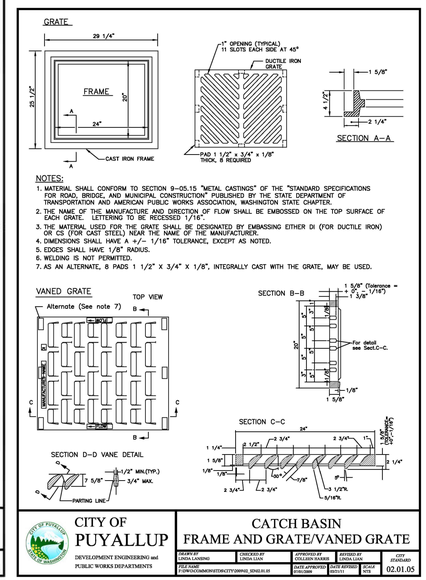


CITY OF PUYALLUP — DEVELOPMENT ENGINEERING and PUBLIC WORKS DEPARTMENTS

CATCH BASIN TYPE II — STANDARD NO. 02.01.04

CATCH BASIN TYPE II

3 NOT TO SCALE

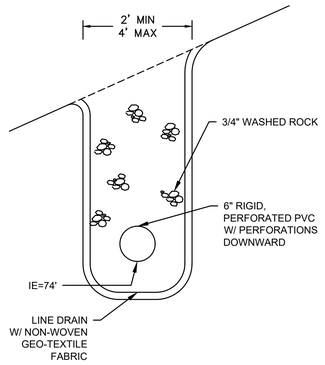


CITY OF PUYALLUP — DEVELOPMENT ENGINEERING and PUBLIC WORKS DEPARTMENTS

CATCH BASIN FRAME AND GRATE/VANED GRATE — STANDARD NO. 02.01.05

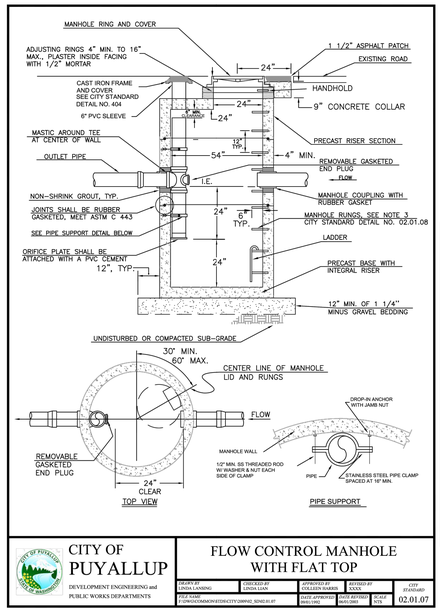
CATCH BASIN FRAME AND GRATE

4 NOT TO SCALE



FRENCH DRAIN DETAIL

5 NOT TO SCALE



CITY OF PUYALLUP — DEVELOPMENT ENGINEERING and PUBLIC WORKS DEPARTMENTS

FLOW CONTROL MANHOLE WITH FLAT TOP — STANDARD NO. 02.01.07

FLOW CONTROL MANHOLE WITH FLAT TOP (AND DATA TABLE)

6 NOT TO SCALE

Updated to match revised MGSFlood model

Revised

VERIFY-"SDCB01" [Plans Sht C4.07; Pg 21 of 53]

Per prior comment, shouldn't this be El. 67.40 which is the bottom of storage and the invert of the outlet pipe? El. 67.65 would place the orifce on the tee of the control riser. [Plans Sht C4.07; Pg 21 of 53]

CONTROL STRUCTURE GEOMETRY

STRUCTURE	PART	INVERT ELEVATION	DIAMETER (IN)	NOTES
SDCB#1	RISER CREST	69.40	18.00	CIRCULAR
	ORIFICE 1	67.65	2.25	CIRCULAR, NO ELBOW
	ORIFICE 2	68.65	3.00	CIRCULAR, NO ELBOW
	ORIFICE 3	69.15	3.50	CIRCULAR, WITH ELBOW
	OUTLET PIPE	67.40	12.00	RIM: 75.54
SDCB#10	RISER CREST	74.77	24.00	CIRCULAR
	ORIFICE 1	68.40	1.375	CIRCULAR, NO ELBOW
	ORIFICE 2	72.40	1.25	CIRCULAR, NO ELBOW
	OUTLET PIPE	68.40	24.00	RIM: 77.21

VERIFY-is it necessary to have such a large control riser and inlet/outlet pipes at SDCB10? [Plans Sht C4.07; Pg 21 of 53]

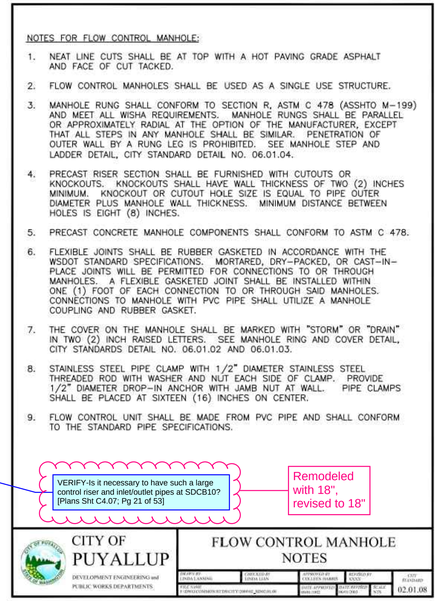
Remodeled with 18", revised to 18"

VERIFY-per calcs the orifice is located at 4.25ft (El. 72.65). [Plans Sht C4.07; Pg 21 of 53]

Revised

VERIFY-Per prior comment, per calcs there is 5.87ft of storage which places the riser crest at El. 74.27 (Bottom of Storage El. 68.40 + storage depth of 5.87). [Plans Sht C4.07; Pg 21 of 53]

Revised

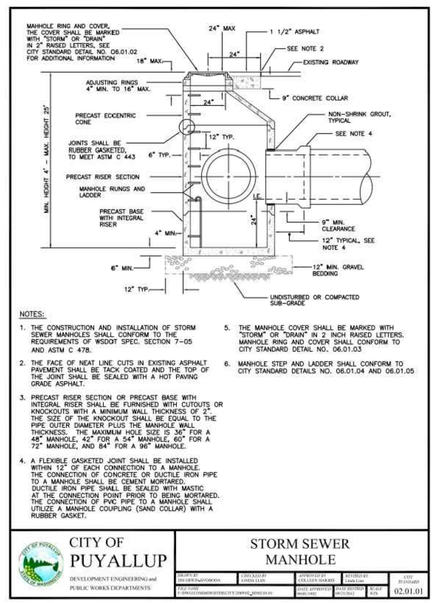


CITY OF PUYALLUP — DEVELOPMENT ENGINEERING and PUBLIC WORKS DEPARTMENTS

FLOW CONTROL MANHOLE NOTES — STANDARD NO. 02.01.08

FLOW CONTROL MANHOLE NOTES

7 NOT TO SCALE

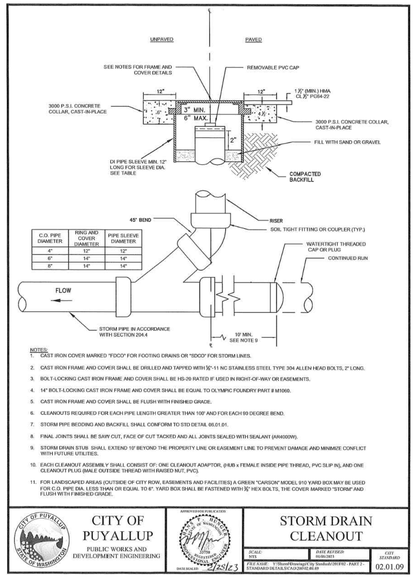


CITY OF PUYALLUP — DEVELOPMENT ENGINEERING and PUBLIC WORKS DEPARTMENTS

STORM SEWER MANHOLE — STANDARD NO. 02.01.01

STORM SEWER MANHOLE

8 NOT TO SCALE



CITY OF PUYALLUP — PUBLIC WORKS AND DEVELOPMENT ENGINEERING

STORM DRAIN CLEANOUT — STANDARD NO. 02.01.09

STORM DRAINAGE NOTES AND DETAILS

9 NOT TO SCALE

811 Know what's below. Call before you dig.

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2215 North 30th Street, Suite 300, Tacoma, WA 98403
253.383.2422 TEL 253.383.2572 FAX www.ahbl.com WEB

Project Title:

EAST TOWN CROSSING PHASE 1

Client:
ASH DEVELOPMENT
GREG HELLE
GREG.HELLE@ASHNW.COM

Project No.
2230752

Issue Set & Date:
PERMIT SUBMITTAL
02/20/2024

TODD CHRISTOPHER SWAIN — STATE OF WASHINGTON — 46416 — REGISTERED PROFESSIONAL ENGINEER
02/21/2024

A
A
A
A 01/29/24 CITY COMMENTS

Revisions:

Sheet Title:

STORM DRAINAGE NOTES AND DETAILS

Designed by:	Drawn by:	Checked by:
CW	SK / RS	JI

Sheet No.

C4.07

21 of 53 Sheets

EAST TOWN CROSSING PHASE 1
SEC. 26,35/ TWP. 20 N./ RGE. 4 E., W.M.

APPROVED

BY _____
CITY OF PUYALLUP
DEVELOPMENT ENGINEERING

DATE _____

NOTE: THIS APPROVAL IS VOID AFTER 180 DAYS FROM APPROVAL DATE.
THE CITY WILL NOT BE RESPONSIBLE FOR ERRORS AND/OR OMISSIONS ON THESE PLANS.
FIELD CONDITIONS MAY DICTATE CHANGES TO THESE PLANS AS DETERMINED BY THE DEVELOPMENT ENGINEERING MANAGER.

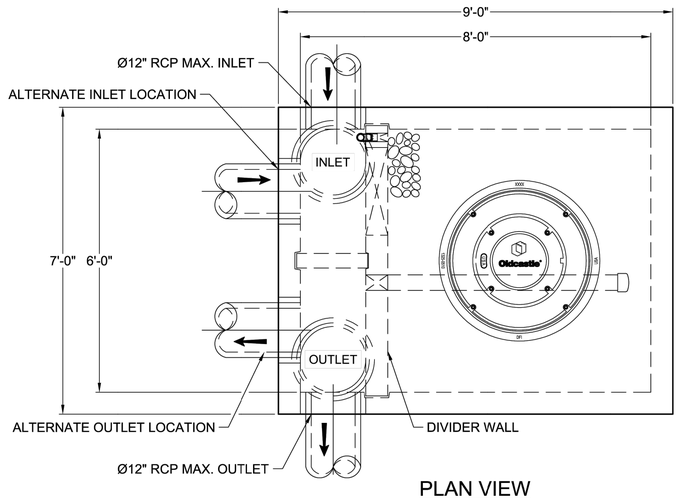
SITE SPECIFIC DATA				
Structure ID				ID
Treatment Flow Rate (cfs)				0.12 CFS
Peak Flow Rate (cfs)				4 CFS
Rim Elevation				
Top of Vault Elevation				
Pipe Data	**Pipe Location**	**Pipe Size**	**Pipe Type**	**Invert Elevation**
Inlet				
Outlet				
Notes: SEE TABLE BELOW FOR DATA				

PERFORMANCE SPECIFICATIONS	
Treatment Flow Capacities:*	
NJDEP 80% Removal, 75 micron	0.144 cfs
WA Ecology GULD - Basic, Enhanced & Phosphorus	0.128 cfs
Bypass Capacity	5.0 cfs

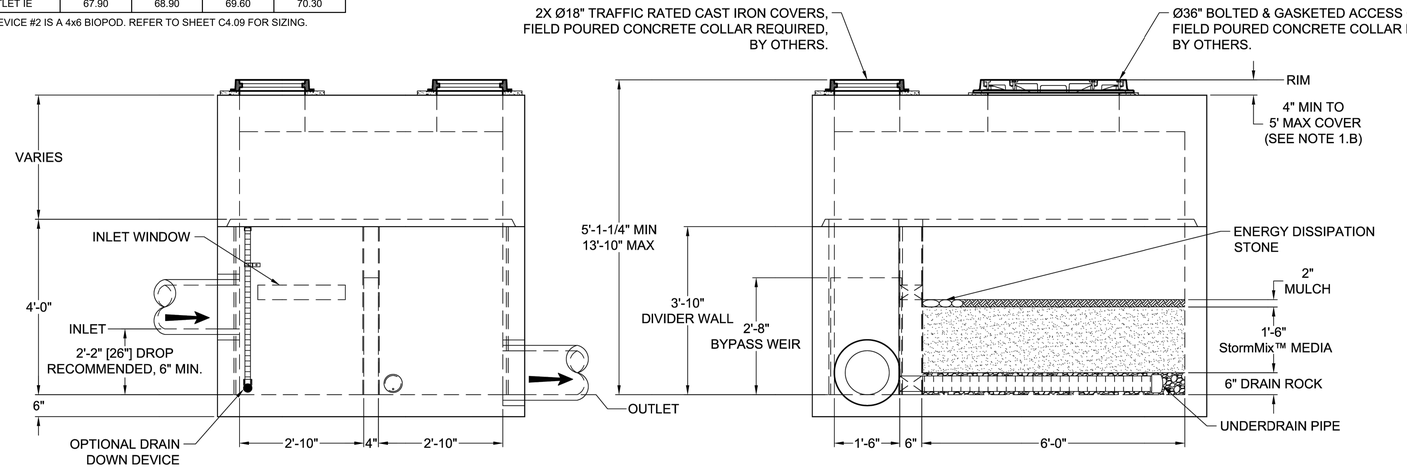
*Contact Oldcastle for alternative treatment flow capacities.

6x8 BIOPOD				
NUMBER	1	3	4	5
RIM	73.16	76.48	76.19	76.23
TOP OF VAULT ELEVATION	72.83	76.15	75.86	75.90
INLET LOCATION	W	S	N	S
PIPE SIZE	12"	12"	12"	12"
PIPE TYPE	CPEP	CPEP	CPEP	CPEP
INLET IE	68.40	71.65	70.10	70.80
OUTLET LOCATION	S	N	S	N
PIPE SIZE	12"	12"	12"	12"
PIPE TYPE	CPEP	CPEP	CPEP	CPEP
OUTLET IE	67.90	68.90	69.60	70.30

WQ DEVICE #2 IS A 4x6 BIOPOD. REFER TO SHEET C4.09 FOR SIZING.



PLAN VIEW



LEFT END VIEW

ELEVATION VIEW

NOTES:

1. DESIGN LOADINGS:
   A. AASHTO HS-20-44 (WITH IMPACT)
   B. DESIGN SOIL COVER: 5'-0" MAXIMUM
   C. ASSUMED WATER TABLE: BELOW BASE OF PRECAST (ENGINEER-OF-RECORD TO CONFIRM SITE WATER TABLE ELEVATION)
   D. LATERAL EARTH PRESSURE: 45 PCF (DRAINED)
   E. LATERAL LIVE LOAD SURCHARGE: 80 PSF (APPLIED TO 8'-0" BELOW GRADE)
   F. NO LATERAL SURCHARGE FROM ADJACENT BUILDINGS, WALLS, PIERS, OR FOUNDATIONS.
2. CONCRETE 28-DAY MINIMUM COMPRESSIVE STRENGTH: 5,000 PSI MINIMUM.
3. REINFORCING: REBAR, ASTM A615/A706, GRADE 60
4. CEMENT: ASTM C150
5. REQUIRED ALLOWABLE SOIL BEARING CAPACITY: 2,500 PSF
6. REFERENCE STANDARD:
   A. ASTM C890
   B. ASTM C913
   C. ACI 318-14
7. THIS STRUCTURE IS DESIGNED TO THE PARAMETERS NOTED HEREIN. ENGINEER-OF-RECORD SHALL VERIFY FY THAT NOTED PARAMETERS MEET OR EXCEED PROJECT REQUIREMENTS. IF DESIGN PARAMETERS ARE INCORRECT, REVIEWING ENGINEER/AUTHORITY SHALL NOTIFY OLDCASTLE INFRASTRUCTURE UPON REVIEW.
8. INLET AND OUTLET HOLES WILL BE FACTORY CORED/CAST PER PLANS AND CUSTOMER REQUIREMENTS. INLET AND OUTLET LOCATIONS CAN BE MIRRORED.
9. CONTRACTOR RESPONSIBLE TO VERIFY ALL SIZES, LOCATIONS, AND ELEVATIONS OF OPENINGS.
10. CONTRACTOR RESPONSIBLE TO ENSURE ADEQUATE BEARING SURFACE IS PROVIDED (I.E. COMPACTED AND LEVEL PER PROJECT SPECIFICATIONS).
11. SECTION HEIGHTS, SLAB/WALL THICKNESSES, AND KEYWAYS ARE SUBJECT TO CHANGE AS REQUIRED FOR SITE REQUIREMENTS AND/OR DUE TO PRODUCT AVAILABILITY AND PRODUCTION FACILITY CONSTRAINTS.
12. MAXIMUM PICK WEIGHTS":
    A. TOP: XX,XXX LBS
    B. BASE: XX,XXX LBS*
       (* COMBINED WEIGHT OF BASE INCLUDES BYPASS WEIR, DIVIDER WALL, ROCK & MEDIA)
13. INTERNALS SHALL CONSIST OF UNDERDRAIN PIPE, ROCK, STORMMIX™ MEDIA, MULCH, DIVIDER WALL, BYPASS WEIR AND OPTIONAL DRAIN DOWN.

Bioretention/ Biofiltration

Oldcastle Infrastructure™ A CRH COMPANY

Ph: 800.579.8819 | www.oldcastleinfrastructure.com/stormwater

BioPod™ Biofilter System (STANDARD)
Underground Vault with Internal Bypass

CUSTOMER: -
PROJECT NAME: -

SHEET NAME	REVISION	SHEET
Specifier Drawing BPU-68IB	-	1 OF 1
	REV DATE: -	

1 6X8 BIOPOD
NOT TO SCALE

811 Know what's **below.** **Call** before you dig.

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253.383.2422 TEL 253.383.2572 FAX www.ahbl.com WEB

Project Title:

EAST TOWN CROSSING PHASE 1

Client:
ASH DEVELOPMENT
GREG HELLE
GREG.HELLE@ASHNW.COM

Project No.
2230752

Issue Set & Date:
PERMIT SUBMITTAL
02/20/2024

TODD CHRISTOPHER SWINT — STATE OF WASHINGTON — 46416 — REGISTERED PROFESSIONAL ENGINEER
02/21/2024

A
A
A
1 01/29/24 CITY COMMENTS
Revisions:

Sheet Title:
STORM DRAINAGE NOTES AND DETAILS

Designed by: CW | Drawn by: SK / RS | Checked by: JI

Sheet No.
C4.08
22 of 53 Sheets

EAST TOWN CROSSING PHASE 1
SEC. 26,35/ TWP. 20 N./ RGE. 4 E., W.M.

APPROVED

BY _____
CITY OF PUYALLUP
DEVELOPMENT ENGINEERING

DATE _____

NOTE: THIS APPROVAL IS VOID AFTER 180 DAYS FROM APPROVAL DATE.
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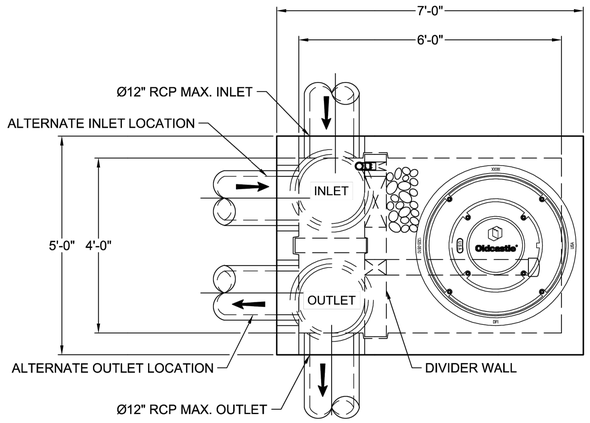
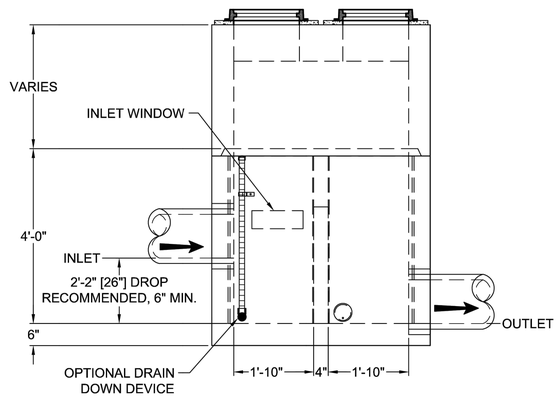
SITE SPECIFIC DATA				
Structure ID				ID
Treatment Flow Rate (cfs)				0.05 CFS
Peak Flow Rate (cfs)				1.2 CFS
Rim Elevation				76.71
Top of Vault Elevation				76.38
Pipe Data	**Pipe Location**	**Pipe Size**	**Pipe Type**	**Invert Elevation**
Inlet	N	8"	CPEP	72.83
Outlet	S	12"	CPEP	70.66
Notes:				

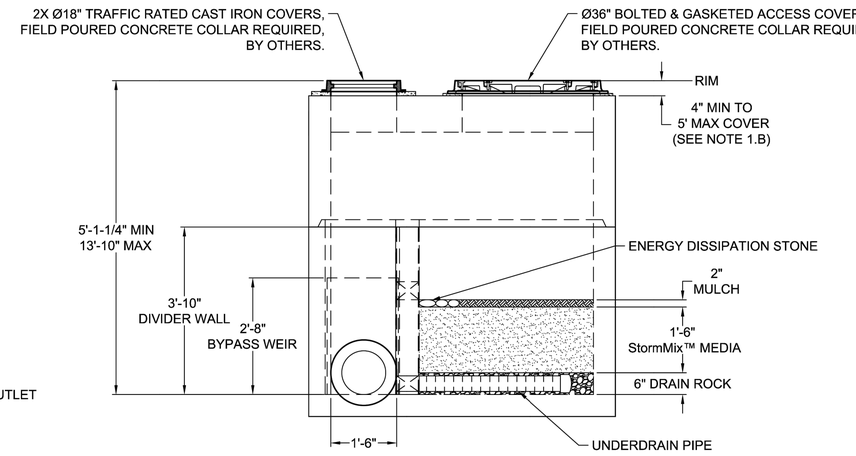
PERFORMANCE SPECIFICATIONS	
Treatment Flow Capacities:*	
NJDEP 80% Removal, 75 micron	0.064 cfs
WA Ecology GULD - Basic, Enhanced & Phosphorus	0.057 cfs
Bypass Capactiy	5.0 cfs
*Contact Oldcastle for alternative treatment flow capacities.	



PLAN VIEW



LEFT END VIEW



ELEVATION VIEW

NOTES:

1. DESIGN LOADINGS:
   A. AASHTO HS-20-44 (WITH IMPACT)
   B. DESIGN SOIL COVER: 5'-0" MAXIMUM
   C. ASSUMED WATER TABLE: BELOW BASE OF PRECAST (ENGINEER-OF-RECORD TO CONFIRM SITE WATER TABLE ELEVATION)
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   E. LATERAL LIVE LOAD SURCHARGE: 80 PSF (APPLIED TO 8'-0" BELOW GRADE)
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       (* COMBINED WEIGHT OF BASE INCLUDES BYPASS WEIR, DIVIDER WALL, ROCK & MEDIA)
13. INTERNALS SHALL CONSIST OF UNDERDRAIN PIPE, ROCK, STORMMIX™ MEDIA, MULCH, DIVIDER WALL, BYPASS WEIR AND OPTIONAL DRAIN DOWN.

Oldcastle Infrastructure™
A CRH COMPANY
Ph: 900.579.8819 | www.oldcastleinfrastructure.com/stormwater

BioPod™ Biofilter System (STANDARD)
Underground Vault with Internal Bypass

CUSTOMER: -
PROJECT NAME: -

SHEET NAME	REVISION	SHEET
Specifier Drawing BPU-46IB	-	1 OF 1
	REV DATE -	

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1 **4X6 BIOPOD**
NOT TO SCALE

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253.383.2422 TEL 253.383.2572 FAX www.ahbl.com WEB

Project Title:

EAST TOWN CROSSING PHASE 1

Client:
ASH DEVELOPMENT
GREG HELLE
GREG.HELLE@ASHNW.COM

Project No.
2230752

Issue Set & Date:
PERMIT SUBMITTAL
02/20/2024

TODD CHRISTOPHER SWAIN — STATE OF WASHINGTON — 46416 — REGISTERED PROFESSIONAL ENGINEER
02/21/2024

1 01/29/24 CITY COMMENTS

Revisions:

Sheet Title:
STORM DRAINAGE NOTES AND DETAILS

Designed by: CW | Drawn by: SK / RS | Checked by: JI

Sheet No.
C4.09
23 of 53 Sheets

EAST TOWN CROSSING PHASE 1
SEC. 26,35/ TWP. 20 N./ RGE. 4 E., W.M.

APPROVED

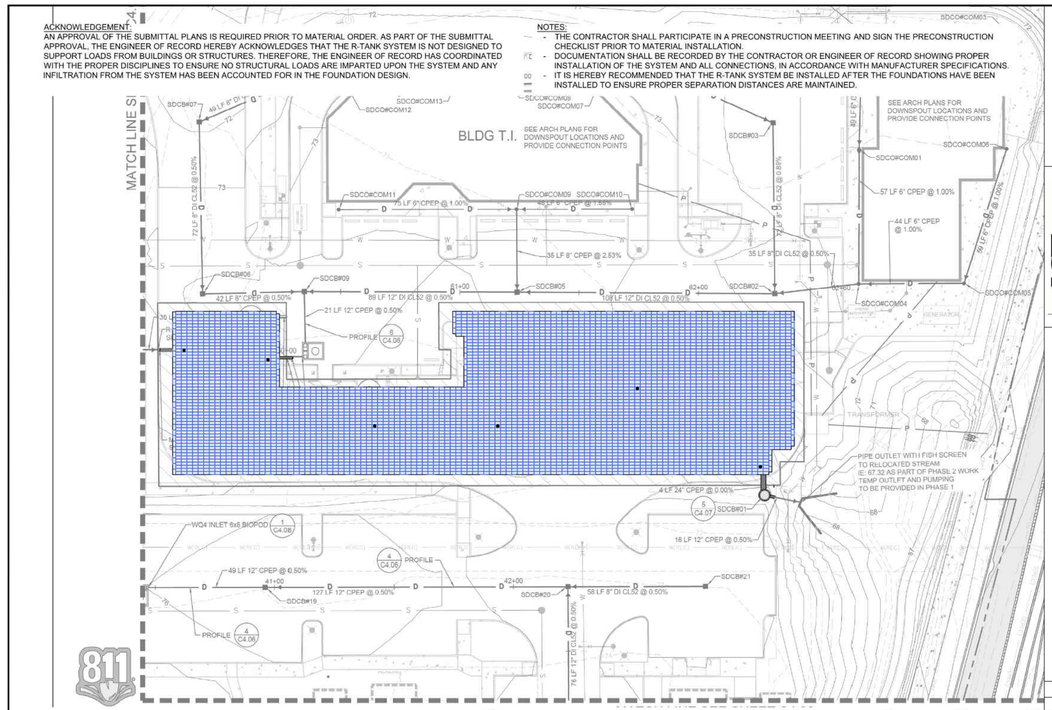
BY _____
CITY OF PUYALLUP
DEVELOPMENT ENGINEERING

DATE _____

NOTE: THIS APPROVAL IS VOID AFTER 180 DAYS FROM APPROVAL DATE.
THE CITY WILL NOT BE RESPONSIBLE FOR ERRORS AND/OR OMISSIONS ON THESE PLANS.
FIELD CONDITIONS MAY DICTATE CHANGES TO THESE PLANS AS DETERMINED BY THE DEVELOPMENT ENGINEERING MANAGER.

ACKNOWLEDGEMENT:
AN APPROVAL OF THE SUBMITTAL PLANS IS REQUIRED PRIOR TO MATERIAL ORDER. AS PART OF THE SUBMITTAL APPROVAL, THE ENGINEER OF RECORD HEREBY ACKNOWLEDGES THAT THE R-TANK SYSTEM IS NOT DESIGNED TO SUPPORT LOADS FROM BUILDINGS OR STRUCTURES. THEREFORE, THE ENGINEER OF RECORD HAS COORDINATED WITH THE PROPER DISCIPLINES TO ENSURE NO STRUCTURAL LOADS ARE IMPARTED UPON THE SYSTEM AND ANY INFILTRATION FROM THE SYSTEM HAS BEEN ACCOUNTED FOR IN THE FOUNDATION DESIGN.

NOTES:
- THE CONTRACTOR SHALL PARTICIPATE IN A PRECONSTRUCTION MEETING AND SIGN THE PRECONSTRUCTION CHECKLIST PRIOR TO MATERIAL INSTALLATION.
- DOCUMENTATION SHALL BE RECORDED BY THE CONTRACTOR OR ENGINEER OF RECORD SHOWING PROPER INSTALLATION OF THE SYSTEM AND ALL CONNECTIONS, IN ACCORDANCE WITH MANUFACTURER SPECIFICATIONS.
- IT IS HEREBY RECOMMENDED THAT THE R-TANK SYSTEM BE INSTALLED AFTER THE FOUNDATIONS HAVE BEEN INSTALLED TO ENSURE PROPER SEPARATION DISTANCES ARE MAINTAINED.



R-TANK^{SD} SYSTEM OVERLAY
SCALE: 1" = 30'

0 30' 60'
SCALE 1" = 30'

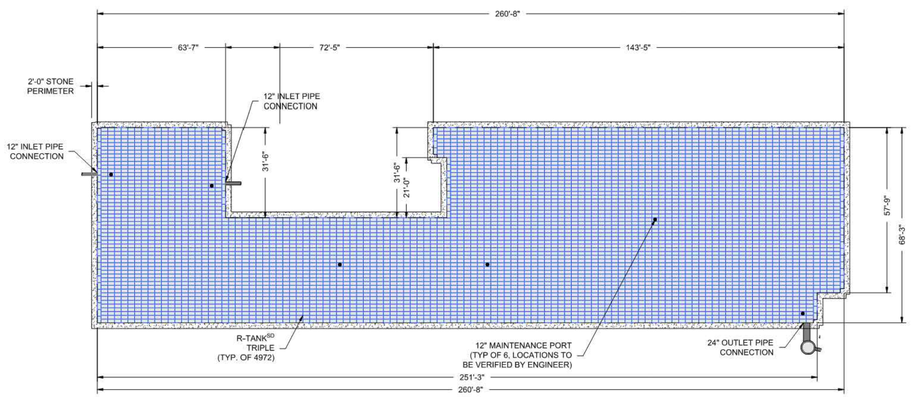
R-TANK^{SD} SYSTEM OVERLAY
EAST TOWN CROSSING
PUYALLUP, WA
SITE DESIGNATION: R-TANK 1

DRAWN BY: EDQ
DATE: 02/20/2024
ACF WEST PROJECT NUMBER: 23-004WA
SHEET NO: 1 of 6

ENGINEER OF RECORD TO REVIEW, APPROVE AND ENDORSE FINAL SITE SPECIFIC DESIGN.

FOR ADDITIONAL INFORMATION PLEASE CONTACT: ACF WEST - 1-800-423-4567, www.acfwest.com

NOTE:
MINIMUM COVER FROM TOP OF TANK TO FINISH GRADE MUST BE AT LEAST 30" TO MEET A 45 KIP OUTRIGGER LOAD ON AN 18'X18" PAD.



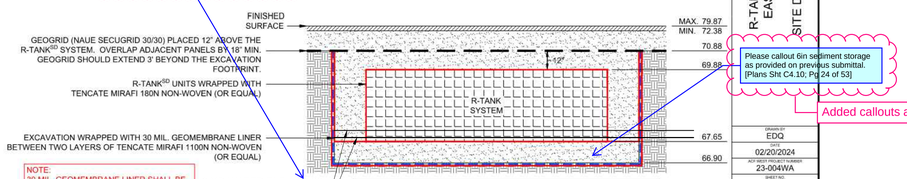
NOTES:
1. DEAD STORAGE VOLUME FROM ELEVATION 66.90 TO 67.40 = 3,356 CF
2. LIVE STORAGE VOLUME FROM ELEVATION 67.40 TO 69.40 = 31,919 CF
3. ONLY 3" OF BASE STONE INCLUDED IN LIVE STORAGE VOLUME.

LAYOUT SCALE	1" = 25'
R-TANK^{SD} MODULE TYPE	TRIPLE
TRAFFIC LOAD	45 KIP OUTRIGGER (18'X18')
# OF SD TRIPLE R-TANKS	4,972
TOTAL SYSTEM STORAGE	31,919 CF
R-TANK STORAGE VOLUME	30241 CF
STONE STORAGE VOLUME (40% VOID RATIO)	1,678 CF
TOP OF COVER STONE ELEV. (12")	70.88
NAUE SECUGRID 30/30 GEOGRID ELEV.	70.88
TOP OF R-TANK ELEV.	69.88
TANK INVERT	67.65
INVERT OF STONE BASE (9")	66.90
MIN. STONE PERIMETER WIDTH	2.0 FT
SEE SHEETS 3 - 8 FOR DETAILS AND ADDITIONAL INFORMATION	

Information flipped, updated

VERIFY-2yr WSE is greater than the 10yr WSE? [Plans Sht C4.10; Pg 24 of 53]

0 25' 50'
SCALE 1" = 25'



Please callout 6in sediment storage as provided on previous submittal. [Plans Sht C4.10; Pg 24 of 53]

Added callouts again

NOTE:
30 MIL. GEOMEMBRANE LINER SHALL BE ULTRAVIOLET (UV) LIGHT RESISTANT.

R-TANK^{SD} TANK WRAP & EXCAVATION ENVELOPE DETAIL

R-TANK^{SD} SYSTEM LAYOUT
EAST TOWN CROSSING
PUYALLUP, WA
SITE DESIGNATION: R-TANK 1

DRAWN BY: EDQ
DATE: 02/20/2024
ACF WEST PROJECT NUMBER: 23-004WA
SHEET NO: 2 of 6

Know what's **below.**
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Project Title:

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GREG HELLE

GREG.HELLE@ASHNW.COM

Project No.
2230752

Issue Set & Date:

PERMIT SUBMITTAL

02/20/2024

TODD CHRISTOPHER SWAIN
STATE OF WASHINGTON
4C416
REGISTERED
PROFESSIONAL ENGINEER
02/21/2024

4
3
2
1 01/29/24 CITY COMMENTS

Revisions:

Sheet Title:

R-TANK 1 NOTES AND DETAILS

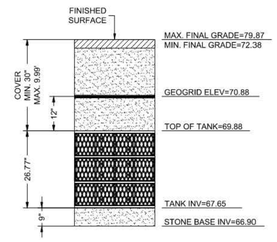
Designed by:	Drawn by:	Checked by:
CW	SK / RS	JI

Sheet No.

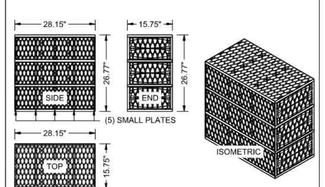
C4.10

24 of 53 Sheets

EAST TOWN CROSSING PHASE 1
SEC. 26,35/ TWP. 20 N./ RGE. 4 E., W.M.



TRIPLE R-TANK^{SD} - ELEVATION



TRIPLE R-TANK^{SD} - MODULE DETAIL

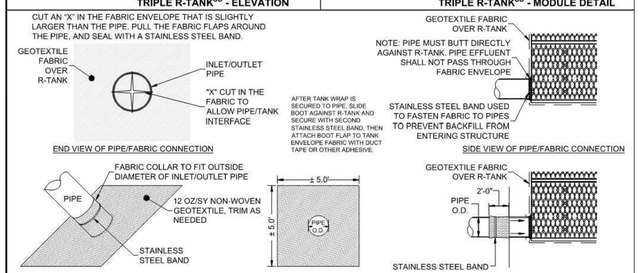
MODULE DATA

GEOMETRY:	**LOAD RATING:**
LENGTH = 28.15 IN. (715 MM)	42.9 PSI, (MODULE ONLY)
WIDTH = 15.75 IN. (400 MM)	HS20/HS25 - SEE SPEC FOR
HEIGHT = 26.77 IN. (680 MM)	COVER REQUIREMENTS
TANK VOLUME = 6.87 CF	**MATERIAL:**
STORAGE VOLUME = 6.52 CF	100% RECYCLED POLYPROPYLENE
VOID INTERNAL VOLUME: 95%	**SMALL PLATES REQUIRED:**
VOID SURFACE AREA: 90%	5/SEGMENT, 15/MODULE

R-TANK^{SD} QUANTITIES	
R-TANK^{SD} MODULE TYPE	TRIPLE
# OF SD TRIPLE R-TANKS	4,972
TOTAL SYSTEM STORAGE	31919
R-TANK STORAGE VOLUME	30241
STONE STORAGE VOLUME (40% VOID RATIO)	1678
STONE BED FOOTPRINT	16781
STONE QUANTITY	1,209 CY
TENCATE MIRAFI 180N NON-WOVEN TANK WRAP	37,082 SF (4,120 SY)
30 MIL. GEOMEMBRANE LINER EXCAVATION WRAP	22,713 SF (2,524 SY)
TENCATE MIRAFI 1100N NON-WOVEN LINER PROTECTION	45,427 SF (5,047 SY)
NAUE SECUGRID 30/30 GEOGRID	20,162 SF (2,240 SY)
12" MAINTENANCE PORTS	6
12" PIPE BOOTS	2
24" PIPE BOOTS	1
TRASHGUARD PLUS UNITS (RECOMMENDED)	2
NOTE: STONE QUANTITY INCLUDES 12" OF COVER AND 9" OF BASE.	
NOTE: GEOTEXTILE / LINER QUANTITIES INCLUDE A 15% WASTE FACTOR.	

NOTE:
30 MIL. GEOMEMBRANE LINER SHALL BE ULTRAVIOLET (UV) LIGHT RESISTANT.

NOTES:
1. DEAD STORAGE VOLUME FROM ELEVATION 66.90 TO 67.40 = 3,356 CF
2. LIVE STORAGE VOLUME FROM ELEVATION 67.40 TO 69.40 = 31,919 CF
3. ONLY 3" OF BASE STONE INCLUDED IN LIVE STORAGE VOLUME.



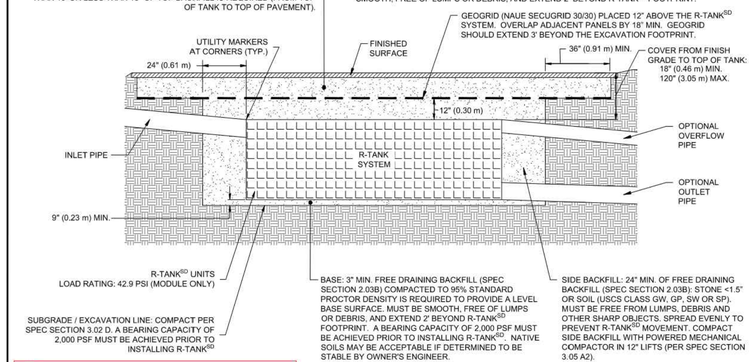
R-TANK^{SD} TYPICAL TANK INLET/OUTLET W/ GEOTEXTILE PIPE BOOT DETAIL

R-TANK^{SD} SYSTEM DETAILS
EAST TOWN CROSSING
PUYALLUP, WA
SITE DESIGNATION: R-TANK 1

DRAWN BY: EDO
DATE: 02/20/2024
ACF WEST PROJECT NUMBER: 23-004WA
SHEET NO: 3 of 6

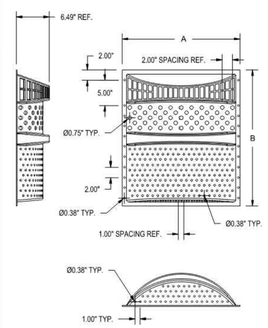
TOTAL COVER: 18" MINIMUM AND 120" MAXIMUM. FIRST 12" MUST BE FREE DRAINING BACKFILL (SPEC SECTION 2.03B): STONE <1.5" OR SOIL (USCS CLASS GW, GP, SW OR SP). ADDITIONAL FILL MAY BE STRUCTURAL FILL (SPEC SECTION 2.03C): STONE OR SOIL (USCS CLASS SM, SP, SW, GM, GP OR GW) WITH MAX CLAY CONTENT<10%, MAX 25% PASSING NO. 200 SIEVE, AND MAX PLASTICITY INDEX OF 4. A MIN. 12" COVER MUST BE MAINTAINED BETWEEN BACKFILL EQUIPMENT AND THE TOP OF THE R-TANK™ SYSTEM AT ALL TIMES. TOTAL HEIGHT OF TOP BACKFILL SHOULD NOT EXCEED 10'. CONTACT ACF WEST IF MORE THAN 10' OR LESS THAN 18" OF TOP BACKFILL IS REQUIRED (FROM TOP OF TANK TO TOP OF PAVEMENT).

NOTES:
1. FOR COMPLETE MODULE DATA, SEE APPROPRIATE R-TANK^{SD} MODULE SHEET .
2. INSTALLATIONS PER THIS DETAIL MEET GUIDELINES OF HL-93 LOADING PER THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, CUSTOMARY U.S. UNITS, 7TH EDITION, 2014 WITH 2015 AND 2016 INTERIM REVISIONS.
3. PRE-TREATMENT STRUCTURES NOT SHOWN.
4. FOR INFILTRATION APPLICATIONS, GEOTEXTILE ENVELOPING R-TANK SHALL BE TENCATE MIRAFI FW-402 WOVEN (PER SPEC SECTION 2.02A) AND BASE SHALL BE 4" MIN. UNCOMPACTED FREE DRAINING BACKFILL (SPEC SECTION 2.03A) TO PROVIDE A LEVEL BASE. SURFACE MUST BE SMOOTH, FREE OF LUMPS OR DEBRIS, AND EXTEND 2' BEYOND R-TANK^{SD} FOOTPRINT.



NOTE:
MINIMUM COVER FROM TOP OF TANK TO FINISH GRADE MUST BE AT LEAST 30" TO MEET A 45 KIP OUTRIGGER LOAD ON AN 18'X18" PAD.

R-TANK^{SD} & HS-20 LOADS - SECTION VIEW



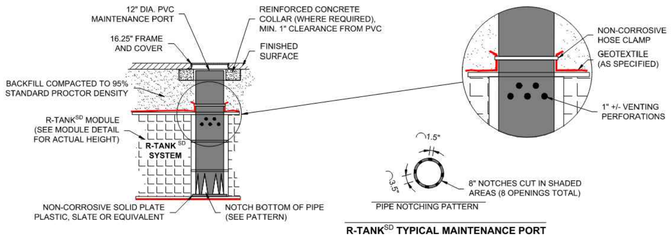
SIZE	A	B
23" x 24"	23"	26.51"
28" x 30"	28"	33.15"
34" x 36"	34"	38.69"

±0.25" TOLERANCE ON DIMENSIONS

NOTE:
TRASHGUARD PLUS UNITS ARE RECOMMENDED TO BE INSTALLED IN ALL CATCH BASINS DIRECTLY CONNECTED UPSTREAM OF THE R-TANK SYSTEM.

TRASHGUARD PLUS PRETREATMENT DETAIL

NOTES
1. THIS PORT IS USED TO PUMP WATER INTO THE SYSTEM AND RE-SUSPEND ACCUMULATED SEDIMENT SO THAT IT MAY BE PUMPED OUT.
2. MINIMUM REQUIRED MAINTENANCE INCLUDES A QUARTERLY INSPECTION DURING THE FIRST YEAR OF OPERATION AND A YEARLY INSPECTION THEREAFTER. FLUSH AS NEEDED.
3. R-TANK^{HD}, R-TANK^{SD}, R-TANK^{LD} AND R-TANK^{XD} MAY BE USED IN TRAFFIC APPLICATIONS.
4. SEE TRAFFIC LOADING DETAIL FOR MINIMUM & MAXIMUM COVER REQUIREMENTS.
5. IF MAINTENANCE PORT IS LOCATED IN A NON-TRAFFIC AREA, A PLASTIC CAP CAN BE USED IN LIEU OF A FRAME AND COVER WITH CONCRETE COLLAR.



R-TANK^{SD} TYPICAL MAINTENANCE PORT

R-TANK^{SD} SYSTEM DETAILS
EAST TOWN CROSSING
PUYALLUP, WA
SITE DESIGNATION: R-TANK 1

DRAWN BY: EDO
DATE: 02/20/2024
ACF WEST PROJECT NUMBER: 23-004WA
SHEET NO: 4 of 6

Know what's **below.** **Call** before you dig.

APPROVED

BY _____
CITY OF PUYALLUP
DEVELOPMENT ENGINEERING

DATE _____

NOTE: THIS APPROVAL IS VOID AFTER 180 DAYS FROM APPROVAL DATE.
THE CITY WILL NOT BE RESPONSIBLE FOR ERRORS AND/OR OMISSIONS ON THESE PLANS.
FIELD CONDITIONS MAY DICTATE CHANGES TO THESE PLANS AS DETERMINED BY THE DEVELOPMENT ENGINEERING MANAGER.

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Project Title:

EAST TOWN CROSSING PHASE 1

Client:
ASH DEVELOPMENT

GREG HELLE

GREG.HELLE@ASHNW.COM

Project No.
2230752

Issue Set & Date:

PERMIT SUBMITTAL

02/20/2024

TODD CHRISTOPHER SWINT — STATE OF WASHINGTON — 24416 — REGISTERED PROFESSIONAL ENGINEER
02/21/2024

Revisions:

1 01/29/24 CITY COMMENTS

Sheet Title:

R-TANK 1 NOTES AND DETAILS

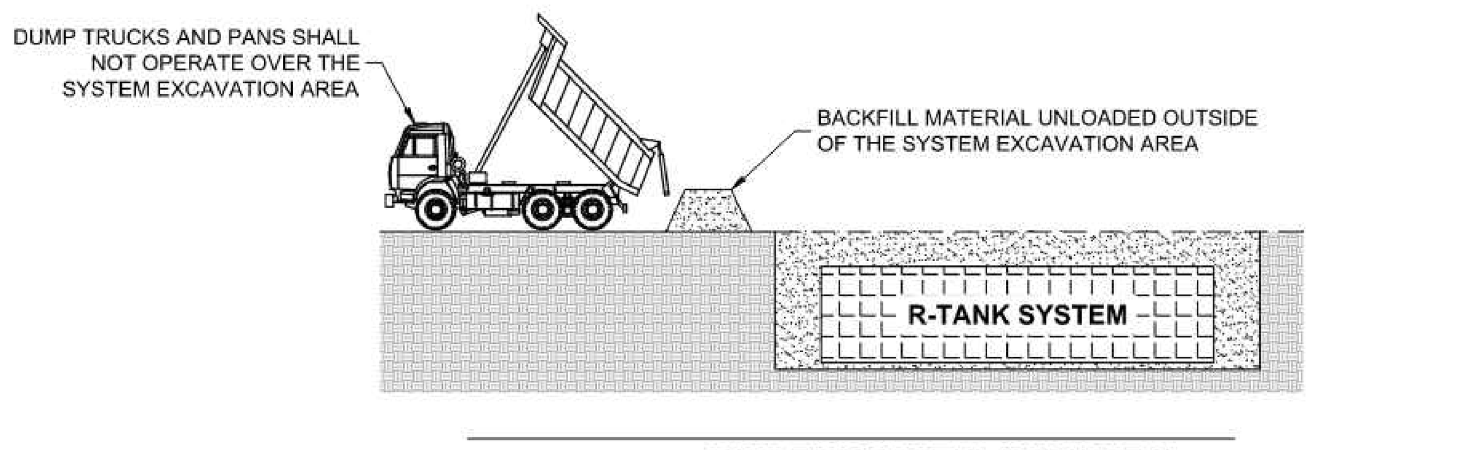
Designed by:	Drawn by:	Checked by:
CW	SK / RS	JI

Sheet No.

C4.11

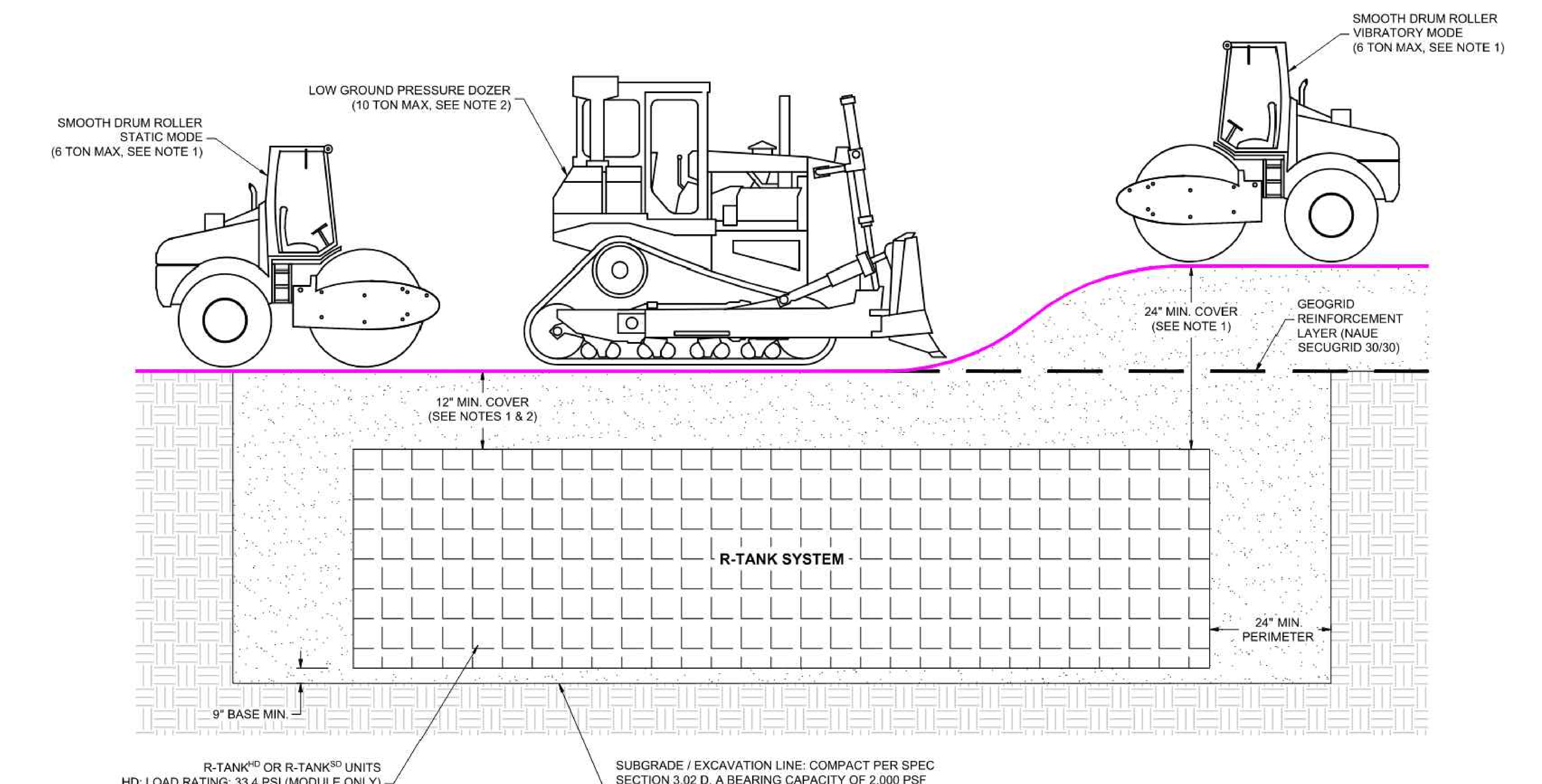
25 of 53 Sheets

EAST TOWN CROSSING PHASE 1
SEC. 26,35/ TWP. 20 N./ RGE. 4 E., W.M.



DUMP TRUCK DETAIL (SEE NOTE 3)

NOTES:
1. FOLLOWING PLACEMENT OF SIDE BACKFILL, A UNIFORM 12" LIFT OF THE FREELY DRAINING MATERIAL (SPEC SECTION 2.03 B2) SHALL BE PLACED OVER THE R-TANK AND LIGHTLY COMPACTED USING A WALK-BEHIND TRENCH ROLLER. ALTERNATELY, A ROLLER (MAXIMUM GROSS VEHICLE WEIGHT OF 6 TONS) MAY BE USED. ROLLER MUST REMAIN IN STATIC MODE UNTIL A MINIMUM OF 24" OF COVER HAS BEEN PLACED OVER THE MODULES. SHEEP FOOT ROLLERS SHOULD NOT BE USED. **SPEC SECTION 3.05 A5**
2. ONLY LOW PRESSURE TIRE OR TRACK VEHICLES (LESS THAN 7 PSI AND OPERATING WEIGHT OF LESS THAN 20,000 LBS) SHALL BE OPERATED OVER THE R-TANK SYSTEM DURING CONSTRUCTION. **SPEC SECTION 3.05 A5**
3. DUMP TRUCKS AND PANS SHALL NOT BE OPERATED WITHIN THE R-TANK SYSTEM AT ANY TIME. WHERE NECESSARY, THE HEAVY EQUIPMENT SHOULD UNLOAD IN AN AREA ADJACENT TO THE R-TANK SYSTEM AND THE MATERIAL SHOULD BE MOVED OVER THE SYSTEM WITH TRACKED EQUIPMENT. **SPEC SECTION 3.05 A5**
4. ENSURE THAT ALL UNRELATED CONSTRUCTION TRAFFIC IS KEPT AWAY FROM THE LIMITS OF EXCAVATION UNTIL THE PROJECT IS COMPLETE AND FINAL SURFACE MATERIALS ARE IN PLACE. NO NON-INSTALLATION RELATED LOADING SHOULD BE ALLOWED OVER THE R-TANK SYSTEM UNTIL THE FINAL DESIGN SECTION HAS BEEN CONSTRUCTED (INCLUDING PAVEMENT). **SPEC SECTION 3.05 B**
5. SEE R-TANK INSTALLATION GUIDE OR CONTACT YOUR LOCAL ACF WEST REPRESENTATIVE FOR ADDITIONAL INFORMATION.



R-TANK^{HD} OR R-TANK^{SD} UNITS
HD: LOAD RATING: 33.4 PSI (MODULE ONLY)
SD: LOAD RATING: 42.9 PSI (MODULE ONLY)

SUBGRADE / EXCAVATION LINE: COMPACT PER SPEC SECTION 3.02 D. A BEARING CAPACITY OF 2,000 PSF MUST BE ACHIEVED PRIOR TO INSTALLING R-TANK^{HD} OR R-TANK^{SD}

CONSTRUCTION EQUIPMENT COVER DETAIL - VEHICULAR TRAFFIC

R-TANK SD

ENGINEER OF RECORD TO REVIEW, APPROVE AND ENDORSE FINAL SITE SPECIFIC DESIGN.

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R-TANK^{SD} CONSTRUCTION EQUIPMENT COVER DETAIL
EAST TOWN CROSSING
PUYALLUP, WA
SITE DESIGNATION: R-TANK 1

DRAWN BY: EDQ
DATE: 02/20/2024
ACF WEST PROJECT NUMBER: 23-004WA
SHEET NO.: 5 of 6

R-TANK SPECIFICATION

PART 1 - GENERAL

1.01 RELATED DOCUMENTS
A. Drawings, technical specification and general provisions of the Contract as modified herein apply to this section.

1.02 DESCRIPTION OF WORK INCLUDED
A. Provide excavation and base preparation per geotechnical engineer's recommendations and/or as shown on the design drawings, to provide adequate support for project design loads and safety from excavation sidewall collapse. Excavations shall be in accordance with the owner's and OSHA requirements.
B. Provide and install R-TankLD/, R-TankHD/, R-TankSD/, or R-TankUD/ system (hereafter called R-Tank) and all related products including fill materials, geotextiles, geogrids, inlet and outlet pipe with connections per the manufacturer's installation guidelines provided in this section.
C. Provide and construct the cover of the R-Tank system including; stone backfill, structural fill cover, and pavement section as specified.
D. Protect R-Tank system from construction traffic after installation until completion of all construction activity in the installation area.

1.03 QUALITY CONTROL
A. All materials shall be manufactured in ISO certified facilities.
B. Installation Contractor shall demonstrate the following experience:
1. A minimum of three R-Tank or equivalent projects completed within 2 years; and,
2. A minimum of 25,000 cubic feet of storage volume completed within 2 years.
3. Contractor experience requirement may be waived if the manufacturer's representative provides on-site training and review during construction.
C. Installation Personnel: Performed only by skilled workers with satisfactory record of performance on bulk earthworks, pipe, chamber, or pond/landfill construction projects of comparable size and quality.
D. Contractor must have manufacturer's representative available for site review if requested by Owner.

1.04 SUBMITTALS
A. Submit proposed R-Tank layout drawings. Drawings shall include typical section details as well as the required base elevation of stone and tanks, minimum cover requirements and tank configuration.
B. Submit manufacturer's product data, including compressive strength and unit weight.
C. Submit manufacturer's installation instructions.
D. Submit R-Tank sample for review. Reviewed and accepted samples will be returned to the Contractor.
E. Submit material certificates for geotextile, geogrid, base course and backfill materials.
F. Submit required experience and personnel requirements as specified in Section 1.03.
G. Any proposed equal alternative product substitution to this specification must be submitted for review and approved prior to bid opening. Review package should include third party reviewed performance data that meets or exceeds criteria in Table 2.01 B.

1.05 DELIVERY, STORAGE, AND HANDLING
A. Protect R-Tank and other materials from damage during delivery, and store UV sensitive materials under tarp to protect from sunlight when time from delivery to installation exceeds two weeks. Storage of materials should be on smooth surfaces, free from dirt, mud and debris.
B. Handling is to be performed with equipment appropriate to the materials and site conditions, and may include hand, handcart, forklifts, extension lifts, etc.
C. Cold weather:
1. Care must be taken when handling plastics when air temperature is 40 degrees or below as plastic becomes brittle.
2. Do not use frozen materials or materials mixed or coated with ice or frost.
3. Do not build on frozen ground or wet, saturated or muddy subgrade.

1.06 PREINSTALLATION CONFERENCE.
A. Prior to the start of the installation, a preinstallation conference shall occur with the representatives from the design team, the general contractor, the excavation contractor, the R-Tank installation contractor, and the manufacturer's representative.

1.07 PROJECT CONDITIONS
A. Coordinate installation for the R-Tank system with other on-site activities to eliminate all non-installation related construction traffic over the completed R-Tank system. No loads heavier than the design loads shall be allowed over the system, and in no case shall loads higher than a standard AASHTO HS20 (or HS25, depending on design criteria) load be allowed on the system at any time.
B. Protect adjacent work from damage during R-Tank system installation.
C. All pre-treatment systems to remove debris and heavy sediments must be in place and functional prior to operation of the R-Tank system. Additional pretreatment measures may be needed if unit is operational during construction due to increased sediment loads.
D. Contractor is responsible for any damage to the system during construction.

PART 2 - PRODUCTS

2.01 R-TANK UNITS
A. R-Tank - Injection molded plastic tank plates assembled to form a 95% void modular structure of predesigned height (custom for each project).
B. R-Tank units shall meet the following Physical & Chemical Characteristics:

PROPERTY	DESCRIPTION	R-Tank^{LD} VALUE	R-Tank^{HD} VALUE	R-Tank^{SD} VALUE	R-Tank^{UD} VALUE
Void Area	Volume available for water storage	95%	95%	95%	95%
Surface Void Area	Percentage of exterior available for infiltration	90%	90%	90%	90%
Vertical Compressive Strength	ASTM D 2412 / ASTM F 2418	30.0 psi	33.4 psi	42.9 psi	134.2 psi
Lateral Compressive Strength	ASTM D 2412 / ASTM F 2418	20.0 psi	22.4 psi	26.9 psi	N/A
HS-20 Minimum Cover	Cover required to support HS-20 loads	N/A	20"	18"	12" (STONE BACKFILL)
HS-25 Minimum Cover	Cover required to support HS-25 loads	N/A	24"	19"	15" (STONE BACKFILL)
Maximum Cover	Maximum allowable cover depth	3 feet	< 7 feet	< 10 feet	5 feet
Unit Weight	Weight of plastic per cubic foot of tank	3.29 lbs / cf	3.62 lbs/cf	3.96 lbs / cf	4.33 lbs / cf
Rib Thickness	Thickness of load-bearing members	0.18 inches	0.18 inches	0.18 inches	N/A
Service Temperature	Safe temperature range for use	-14 – 167° F	-14 – 167° F	-14 – 167° F	-14 – 167° F

C. Supplier: ACF West 15540 Woodinville-Redmond Rd., Woodinville, Washington 98072, (425) 415-6115, www.acfwest.com

2.02 GEOSYNTHETICS
A. Geotextile. A geotextile envelope is required to prevent backfill material from entering the R-Tank modules.
1. Standard Application: The standard geotextile shall be an 8 oz per square yard nonwoven geotextile (TenCate Mirafi 180N or equivalent).
2. Infiltration Applications: When water must infiltrate/exfiltrate through the geotextile as a function of the system design, a woven monofilament (TenCate Mirafi FW402 or equivalent) shall be used.
B. Geogrid. For installations subject to traffic loads and/or when required by project plans, install geogrid (Naue Secugrid 30/30 or equivalent) to reinforce backfill above the R-Tank system. Geogrid is not always required for R-TankUD/ installations, and is often not required for non-traffic load applications.
C. MANUFACTURED 30 MIL. (MIN) IMPERMEABLE LINER TO PREVENT GROUNDWATER INTRUSION.

2.03 BACKFILL & COVER MATERIALS
A. Bedding Materials: Stone (angular and smaller than 1.5" in diameter) or soil (GW, GP, SW, or SP as classified by the Unified Soil Classification System) shall be used below the R-Tank system (3" minimum). Material must be free from lumps, debris, and any sharp objects that could cut the geotextile. Material shall be within 3 percent of the optimum moisture content as determined by ASTM D698 at the time of installation. For infiltration applications bedding material shall be free draining.
B. Side and Top Backfill: Material must be free from lumps, debris and any sharp objects that could cut the geotextile. Material shall be within 3 percent of the optimum moisture content as determined by ASTM D698 at the time of installation.
1. Traffic Applications - Free draining material shall be used adjacent to (24" minimum) and above (for the first 12") the R-Tank system.
a. For HD, and SD modules, backfill materials shall be free draining stone (angular and smaller than 1.5" in diameter) or soil (GW, GP, SW, or SP as classified by the Unified Soil Classification System).
b. For UD modules with less than 14" of top cover, backfill materials shall be free draining stone (angular and smaller than 1.5" in diameter). The use of soil backfill on the sides and top of the UD module is not permitted unless the modules are installed outside of traffic areas or with cover depths of 14" or more. Top backfill material (from top of module to bottom of pavement base or 12" maximum) must be consistent with side backfill.
2. Non-Traffic / Green Space Applications - For all R-Tank modules installed in green spaces and not subjected to vehicular loads, backfill materials may either follow the guidelines for Traffic Applications above, or the top backfill layer (12" minimum) may consist of AASHTO #57 stone blended with 30-40% (by volume) topsoil to aid in establishing vegetation.
C. Additional Cover Materials: Structural Fill shall consist of granular materials meeting the gradational requirements of SM, SP, SW, GM, GP or GW as classified by the Unified Soil Classification System. Structural fill shall have a maximum of 25 percent passing the No. 200 sieve, shall have a maximum clay content of 10 percent and a maximum Plasticity Index of 4. Material shall be within 3 percent of the optimum moisture content as determined by ASTM D698 at the time of installation.

2.04 OTHER MATERIALS
A. Utility Marker: Install metallic tape at corners of R-Tank system to mark the area for future utility detection.

PART 3 - EXECUTION

3.01 ASSEMBLY OF R-TANK UNITS
A. Assembly of modules shall be performed in accordance with the R-Tank Installation Manual, Section 2.

3.02 LAYOUT AND EXCAVATION
A. Installer shall stake out, excavate, and prepare the subgrade area to the required plan grades and dimensions, ensuring that the excavation is at least 2 feet greater than R-Tank dimensions in each direction allowing for installation of geotextile filter fabric, R-Tank modules, and free draining backfill materials.
B. All excavations must be prepared with OSHA approved excavated sides and sufficient working space.
C. Protect partially completed installation against damage from other construction traffic by establishing a perimeter with high visibility construction tape, fencing, barricades, or other means until construction is complete.
D. Base of the excavation shall be uniform, level, and free of lumps or debris and soft or yielding subgrade areas. A minimum 2,000 pounds per square foot bearing capacity is required.
1. Standard Applications: Compact subgrade to a minimum of 95% of Standard Proctor (ASTM D698) density or as required by the Owner's engineer.
2. Infiltration Applications: Subgrade shall be prepared in accordance with the contract documents. Compaction of subgrade should not be performed in infiltration applications.
E. Unsuitable Soils or Conditions: All questions about the base of the excavation shall be directed to the owner's engineer, who will approve the subgrade conditions prior to placement of stone. The owner's engineer shall determine the required bearing capacity of the R-Tank subgrade; however in no case shall a bearing capacity of less than 2,000 pounds per square foot be provided.
1. If unsuitable soils are encountered at the subgrade, or if the subgrade is pumping or appears excessively soft, repair the area in accordance with contract documents and/or as directed by the owner's engineer.
2. If indications of the water table are observed during excavation, the engineer shall be contacted to provide recommendations.
3. Do not start installation of the R-Tank system until unsatisfactory subgrade conditions are corrected and the subgrade conditions are accepted by the owner's engineer.

3.03 PREPARATION OF BASE
A. Place a thin layer (3" unless otherwise specified) of bedding material (Section 2.03 A), over the subgrade to establish a level working platform for the R-Tank modules. Level to within ½" (+/- ¼") or as shown on the plans. Native subgrade soils or other materials may be used if determined to meet the requirements of 2.03 A and are accepted by the owner's engineer.
1. Standard Applications: Static roll or otherwise compact bedding materials until they are firm and unyielding.
2. Infiltration Applications: Bedding materials shall be prepared in accordance with the contract documents.
B. Outline the footprint of the R-Tank system on the excavation floor using spray paint or chalk line to ensure a 2' perimeter is available around the R-Tank system for proper installation and compaction of backfill.

3.04 INSTALLATION OF THE R-TANKS
A. Where a geotextile wrap is specified on the stone base, cut strips to length and install in excavation, removing wrinkles so material lays flat. Overlap geotextile a minimum 12" or as recommended by manufacturer. Use tape, special adhesives, sandbags or other ballast to secure overlaps. As geotextiles can be damaged by extreme heat, smoking is not permissible on/near the geotextile, and tools using a flame to tack the overlaps, such as propane torches, are prohibited.
B. Where an impervious liner (for containment) is specified, install the liner per manufacturer's recommendations and the contract documents. The R-Tank units shall be separated from impervious liner by a non-woven geotextile fabric installed accordance with Section 3.04A.
C. Install R-Tank modules by placing side by side, in accordance with the design drawings. No lateral connections are required. It is advisable to use a string line to form square corners and straight edges along the perimeter of the R-Tank system. The modules are to be oriented as per the design drawing with required depth as shown on plans.
1. For LD, HD, and SD installations, the large side plate of the tank should be placed on the perimeter of the system. This will typically require that the two ends of the tank area will have a row of tanks placed perpendicular to all other tanks. If this is not shown in the construction drawings, it is a simple field adjustment that will have minimal effect on the overall system footprint. Refer to R-Tank Installation Guide for more details
2. For UD installations, there is no perpendicular end row required.
D. Wrap the R-Tank top and sides in specified geotextile. Cut strips of geotextile so that it will cover the sides and top; encapsulating the entire system to prevent backfill entry into the system. Overlap geotextile 12" or as recommended by manufacturer. Take great care to avoid damage to geotextile (and, if specified, impervious liner) during placement.
E. Identify locations of inlet, outlet and any other penetrations of the geotextile (and optional liner). These connections should be installed flush (butted up to the R-Tank) and the geotextile fabric shall be cut to enable hydraulic continuity between the connections and the R-Tank units. These connections shall be secured using pipe boots with stainless steel pipe clamps. Support pipe in trenches during backfill operations to prevent pipe from settling and damaging the geotextile, impervious liner (if specified) or pipe. Connecting pipes at 90 degree angles facilitates construction, unless otherwise specified. Ensure end of pipe is installed snug against R-Tank system.
F. Install Inspection and Maintenance Ports in locations noted on plans. At a minimum one maintenance port shall be installed within 10' of each inlet & outlet connection, and with a maximum spacing of one maintenance port for every 2,500 square feet. Install all ports as noted in the R-Tank Installation Guide.
G. If required, install ventilation pipes and vents as specified on drawings to provide ventilation for proper hydraulic performance. The number of pipes and vents will depend on the size of the system. Vents are often installed using a 90 degree elbow with PVC pipe into a landscaped area with "U" bend or venting bollard to inhibit the ingress of debris. A ground level concrete or steel cover can be used.

3.05 BACKFILLING OF THE R-TANK UNITS
A. Backfill and fill with recommended materials as follows:
1. Place freely draining backfill materials (Section 2.03 B) around the perimeter in lifts with a maximum thickness of 12". Each lift shall be placed around the entire perimeter such that each lift is no more than 24" higher than the side backfill along any other location on the perimeter of the R-Tank system. No fill shall be placed over top of tanks until the side backfill has been completed.
2. Each lift shall be compacted at the specified moisture content to a minimum of 95% of the Standard Proctor Density until no further densification is observed (for self-compacting stone materials). The side lifts must be compacted with walk behind compaction equipment. Even when "self-compacting" backfill materials are selected, a walk behind vibratory compactor must be used.
3. Take care to ensure that the compaction process does not allow the machinery to come into contact with the modules due to the potential for damage to the geotextile and R-Tank units.
4. No compaction equipment is permissible to operate directly on the R-Tank modules.
5. Top Backfill: Only low pressure track vehicles shall be operated over the R-Tank system during construction. Dump Trucks and Pans shall not be operated within the R-Tank system footprint at any time. Heavy equipment should unload in an area adjacent to the R-Tank system and the material should be moved over the system using tracked equipment with an operating weight of less than 10 tons.
a. Typical Applications: Install a 12" (or as shown on plans) lift of freely draining material (Section 2.03 B) over the R-Tank Units, maintaining 12" between equipment tracks and R-Tank System. Lightly compacted using a walk-behind trench roller. Alternately, a roller (maximum gross vehicle weight of 6 tons) may be used. Roller must remain in static mode until a minimum of 24" of cover has been placed over the modules. Sheep foot rollers should not be used.
b. Shallow Applications (< 18" total cover): Install top backfill in accordance with plans.
6. If required, install a geogrid as shown on plans. Geogrid shall extend a minimum of 3 feet beyond the limits of the excavation wall.
7. Following placement and compaction of the initial cover, subsequent lifts of structural fill (Section 2.03 C) shall be placed at the specified moisture content and compacted to a minimum of 95% of the Standard Proctor Density and shall cover the entire footprint of the R-Tank system. During placement of fill above the system, unless otherwise specified, a uniform elevation of fill shall be maintained to within 12" across the footprint of the R-Tank system. Do not exceed maximum cover depths listed in Table 2.01 B.
8. Place additional layers of geotextile and/or geogrid at elevations as specified in the design details. Each layer of geosynthetic reinforcement placed above the R-Tank system shall extend a minimum of 3 feet beyond the limits of the excavation wall.
B. Ensure that all unrelated construction traffic is kept away from the limits of excavation until the project is complete and final surface materials are in place. No non-installation related loading should be allowed over the R-Tank system until the final design section has been constructed (including pavement).
C. Place surfacing materials, such as groundcovers (no large trees), or paving materials over the structure with care to avoid displacement of cover fill and damage to surrounding areas.
D. Backfill depth over R-Tank system must be within the limitations shown in the table in Section 2.01 B. If the total backfill depth does not comply with this table, contact engineer or manufacturer's representative for assistance.

3.06 MAINTENANCE REQUIREMENTS
A. A routine maintenance effort is required to ensure proper performance of the R-Tank system. The Maintenance program should be focused on pretreatment systems. Ensuring these structures are clean and functioning properly will reduce the risk of contamination of the R-Tank system and stormwater released from the site. Pre-treatment systems shall be inspected yearly, or as directed by the regulatory agency and by the manufacturer (for proprietary systems). Maintain as needed using acceptable practices or following manufacturer's guidelines (for proprietary systems).
B. All inlet pipes and Inspection and/or Maintenance Ports in the R-Tank system will need to be inspected for accumulation of sediments at least quarterly through the first year of operation and at least yearly thereafter.
C. If sediment has accumulated to the level noted in the R-Tank Maintenance Guide or beyond a level acceptable to the Owner's engineer, the R-Tank system should be flushed.
D. All inspection and maintenance activities should be performed in accordance with the R-Tank Operation, Inspection & Maintenance Manual.

R-TANK SD

ENGINEER OF RECORD TO REVIEW, APPROVE AND ENDORSE FINAL SITE SPECIFIC DESIGN.

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R-TANK SPECIFICATION
EAST TOWN CROSSING
PUYALLUP, WA
SITE DESIGNATION: R-TANK 1

DRAWN BY: EDQ
DATE: 02/20/2024
ACF WEST PROJECT NUMBER: 23-004WA
SHEET NO.: 6 of 6

Know what's **below.**
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BY ______
CITY OF PUYALLUP
DEVELOPMENT ENGINEERING

DATE ______

NOTE: THIS APPROVAL IS VOID AFTER 180 DAYS FROM APPROVAL DATE.
THE CITY WILL NOT BE RESPONSIBLE FOR ERRORS AND/OR OMISSIONS ON THESE PLANS.
FIELD CONDITIONS MAY DICTATE CHANGES TO THESE PLANS AS DETERMINED BY THE DEVELOPMENT ENGINEERING MANAGER.

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2215 North 30th Street, Suite 300, Tacoma, WA 98403
253.383.2422 TEL 253.383.2572 FAX www.ahbl.com WEB

Project Title:
EAST TOWN CROSSING PHASE 1

Client:
ASH DEVELOPMENT
GREG HELLE
GREG.HELLE@ASHNW.COM

Project No.
2230752

Issue Set & Date:
PERMIT SUBMITTAL
02/20/2024

4
3
2
1 01/29/24 CITY COMMENTS
Revisions:

Sheet Title:
R-TANK 1 NOTES AND DETAILS

Designed by:	Drawn by:	Checked by:
CW	SK / RS	JI

Sheet No.
C4.12

EAST TOWN CROSSING PHASE 1
SEC. 26,35/ TWP. 20 N./ RGE. 4 E., W.M.

APPROVED

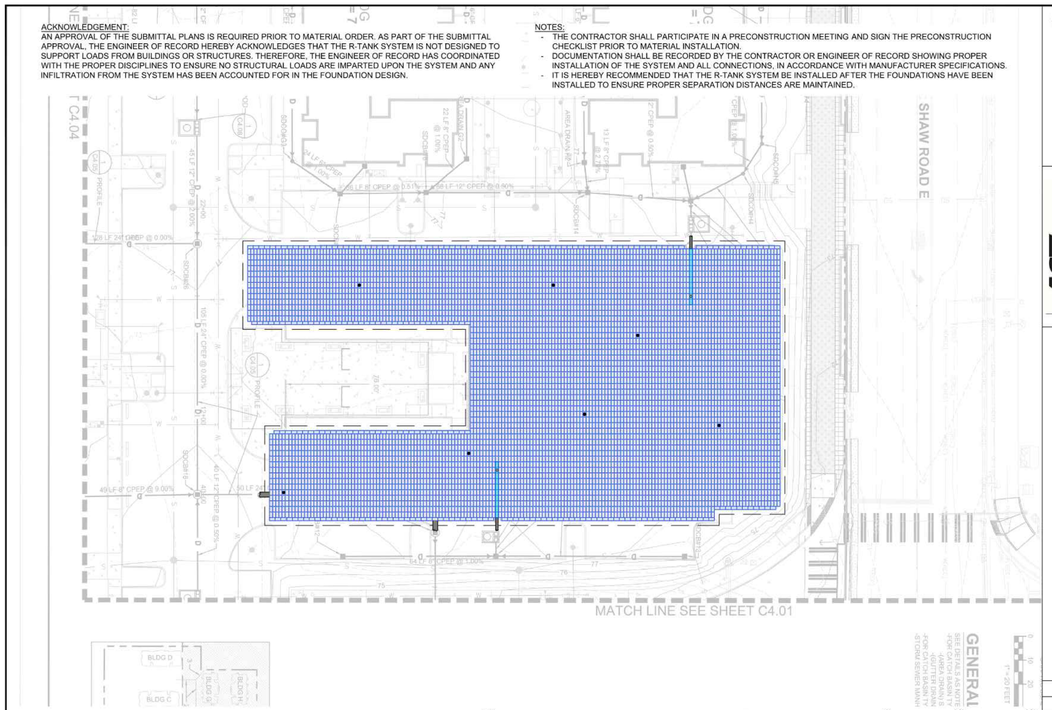
BY _____
CITY OF PUYALLUP
DEVELOPMENT ENGINEERING

DATE _____

NOTE: THIS APPROVAL IS VOID AFTER 180 DAYS FROM APPROVAL DATE.
THE CITY WILL NOT BE RESPONSIBLE FOR ERRORS AND/OR OMISSIONS ON THESE PLANS.
FIELD CONDITIONS MAY DICTATE CHANGES TO THESE PLANS AS DETERMINED BY THE DEVELOPMENT ENGINEERING MANAGER.

ACKNOWLEDGEMENT:
AN APPROVAL OF THE SUBMITTAL PLANS IS REQUIRED PRIOR TO MATERIAL ORDER. AS PART OF THE SUBMITTAL APPROVAL, THE ENGINEER OF RECORD HEREBY ACKNOWLEDGES THAT THE R-TANK SYSTEM IS NOT DESIGNED TO SUPPORT LOADS FROM BUILDINGS OR STRUCTURES. THEREFORE, THE ENGINEER OF RECORD HAS COORDINATED WITH THE PROPER DISCIPLINES TO ENSURE NO STRUCTURAL LOADS ARE IMPARTED UPON THE SYSTEM AND ANY INFILTRATION FROM THE SYSTEM HAS BEEN ACCOUNTED FOR IN THE FOUNDATION DESIGN.

NOTES:
- THE CONTRACTOR SHALL PARTICIPATE IN A PRECONSTRUCTION MEETING AND SIGN THE PRECONSTRUCTION CHECKLIST PRIOR TO MATERIAL INSTALLATION.
- DOCUMENTATION SHALL BE RECORDED BY THE CONTRACTOR OR ENGINEER OF RECORD SHOWING PROPER INSTALLATION OF THE SYSTEM AND ALL CONNECTIONS, IN ACCORDANCE WITH MANUFACTURER SPECIFICATIONS.
- IT IS HEREBY RECOMMENDED THAT THE R-TANK SYSTEM BE INSTALLED AFTER THE FOUNDATIONS HAVE BEEN INSTALLED TO ENSURE PROPER SEPARATION DISTANCES ARE MAINTAINED.

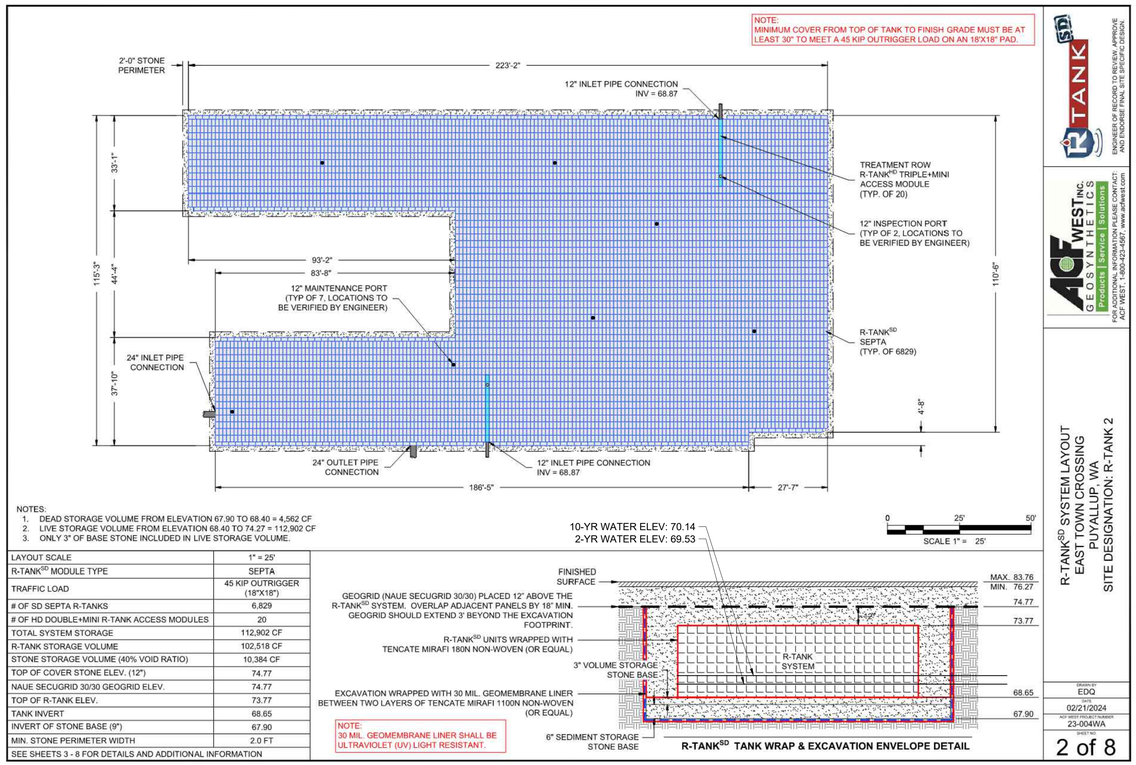


R-TANK^{SD} SYSTEM OVERLAY
SCALE: 1" = 30'

SCALE 1" = 30'

R-TANK^{SD} SYSTEM OVERLAY
EAST TOWN CROSSING
PUYALLUP, WA
SITE DESIGNATION: R-TANK 2

DRAWN BY: EDQ
DATE: 02/21/2024
ACF WEST PROJECT NUMBER: 23-004WA
SHEET NO: 1 of 8



NOTES:
1. DEAD STORAGE VOLUME FROM ELEVATION 67.90 TO 68.40 = 4,562 CF
2. LIVE STORAGE VOLUME FROM ELEVATION 68.40 TO 74.27 = 112,902 CF
3. ONLY 3" OF BASE STONE INCLUDED IN LIVE STORAGE VOLUME.

SCALE 1" = 25'

LAYOUT SCALE	1" = 25'
R-TANK^{SD} MODULE TYPE	SEPTA
TRAFFIC LOAD	45 KIP OUTRIGGER (18'X18')
# OF SD SEPTA R-TANKS	6,829
# OF HD DOUBLE+MINI R-TANK ACCESS MODULES	20
TOTAL SYSTEM STORAGE	112,902 CF
R-TANK STORAGE VOLUME	102,518 CF
STONE STORAGE VOLUME (40% VOID RATIO)	10,384 CF
TOP OF COVER STONE ELEV. (12")	74.77
NAUE SECUGRID 30/30 GEOGRID ELEV.	74.77
TOP OF R-TANK ELEV.	73.77
TANK INVERT	68.65
INVERT OF STONE BASE (9")	67.90
MIN. STONE PERIMETER WIDTH	2.0 FT

SEE SHEETS 3 - 8 FOR DETAILS AND ADDITIONAL INFORMATION

NOTE:
30 MIL. GEOMEMBRANE LINER SHALL BE ULTRAVIOLET (UV) LIGHT RESISTANT.

R-TANK^{SD} TANK WRAP & EXCAVATION ENVELOPE DETAIL

R-TANK^{SD} SYSTEM LAYOUT
EAST TOWN CROSSING
PUYALLUP, WA
SITE DESIGNATION: R-TANK 2

DRAWN BY: EDQ
DATE: 02/21/2024
ACF WEST PROJECT NUMBER: 23-004WA
SHEET NO: 2 of 8

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R-TANK 2 NOTES AND DETAILS

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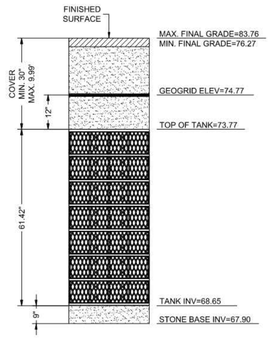
Sheet No.

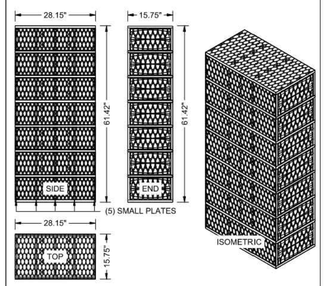
C4.20

27 of 53 Sheets

EAST TOWN CROSSING PHASE 1
SEC. 26,35/ TWP. 20 N./ RGE. 4 E., W.M.



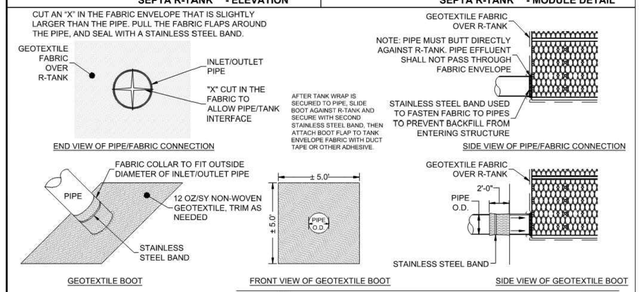
SEPTA R-TANK^{SD} - ELEVATION



SEPTA R-TANK^{SD} - MODULE DETAIL

MODULE DATA

GEOMETRY:	**LOAD RATING:**
LENGTH = 28.15 IN. (715 MM)	42.9 PSI, (MODULE ONLY)
WIDTH = 15.75 IN. (400 MM)	HS20/HS25 - SEE SPEC FOR
HEIGHT = 61.42 IN. (1560 MM)	COVER REQUIREMENTS
TANK VOLUME = 15.76 CF	**MATERIAL:**
STORAGE VOLUME = 14.97 CF	100% RECYCLED POLYPROPYLENE
VOID INTERNAL VOLUME: 95%	**SMALL PLATES REQUIRED:**
VOID SURFACE AREA: 90%	5/SEGMENT; 35/MODULE



R-TANK^{SD} TYPICAL TANK INLET/OUTLET W/ GEOTEXTILE PIPE BOOT DETAIL

R-TANK^{SD} QUANTITIES	
R-TANK^{SD} MODULE TYPE	SEPTA
# OF SD SEPTA R-TANKS	6,829
# OF HD TRIPLE+MINI R-TANK ACCESS MODULES	20
TOTAL SYSTEM STORAGE	112,902 CF
R-TANK STORAGE VOLUME	102,518 CF
STONE STORAGE VOLUME (40% VOID RATIO)	10,384 CF
STONE BED FOOTPRINT	22,811 SF
STONE QUANTITY	1,806 CY
TENCATE MIRAFI 180N NON-WOVEN TANK WRAP	53,504 SF (5,945 SY)
30 MIL. GEOMEMBRANE LINER EXCAVATION WRAP	33,030 SF (3,670 SY)
TENCATE MIRAFI 1100N NON-WOVEN LINER PROTECTION	66,060 SF (7,340 SY)
TENCATE MIRAFI 180N NON-WOVEN TREAT. ROW WRAP	659 SF (73 SY)
TENCATE MIRAFI FW-402 WOVEN TREAT. ROW BASE FABRIC	388 SF (43 SY)
NAUE SECUGRID 30/30 GEOGRID	30,265 SF (3,363 SY)
12" MAINTENANCE PORTS	7
12" INSPECTION PORTS	2
12" PIPE BOOTS	2
24" PIPE BOOTS	2
TRASHGUARD PLUS UNITS (RECOMMENDED)	1
NOTE: STONE QUANTITY INCLUDES 12" OF COVER AND 9" OF BASE.	
NOTE: GEOTEXTILE / LINER QUANTITIES INCLUDE A 15% WASTE FACTOR.	

NOTE:
30 MIL. GEOMEMBRANE LINER SHALL BE ULTRAVIOLET (UV) LIGHT RESISTANT.

NOTES:
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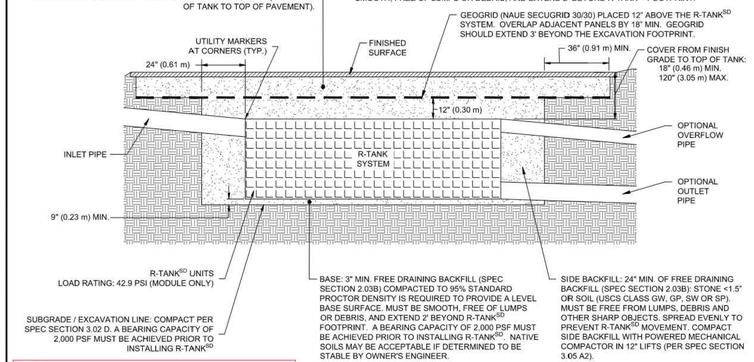
2. LIVE STORAGE VOLUME FROM ELEVATION 68.40 TO 74.27 = 112,902 CF
3. ONLY 3" OF BASE STONE INCLUDED IN LIVE STORAGE VOLUME.

R-TANK^{SD} SYSTEM DETAILS
EAST TOWN CROSSING
PUYALLUP, WA
SITE DESIGNATION: R-TANK 2

DRAWN BY: EDQ
DATE: 02/21/2024
ACF WEST PROJECT NUMBER: 23-004WA
SHEET NO.: 3 of 8

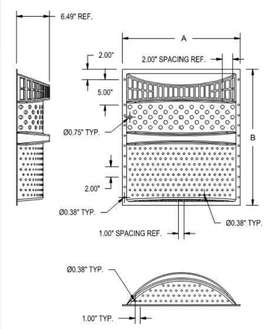
TOTAL COVER: 18" MINIMUM AND 120" MAXIMUM. FIRST 12" MUST BE FREE DRAINING BACKFILL (SPEC SECTION 2.03B): STONE <1.5" OR SOIL (USCS CLASS GW, GP, SW OR SP). ADDITIONAL FILL MAY BE STRUCTURAL FILL (SPEC SECTION 2.03C): STONE OR SOIL (USCS CLASS SM, SP, SW, GM, GP OR GW) WITH MAX CLAY CONTENT<10%, MAX 25% PASSING NO. 200 SIEVE, AND MAX PLASTICITY INDEX OF 4 A MIN. 12" COVER MUST BE MAINTAINED BETWEEN BACKFILL EQUIPMENT AND THE TOP OF THE R-TANK™ SYSTEM AT ALL TIMES. TOTAL HEIGHT OF TOP BACKFILL SHOULD NOT EXCEED 10'. CONTACT ACF WEST IF MORE THAN 10' OR LESS THAN 18" OF TOP BACKFILL IS REQUIRED (FROM TOP OF TANK TO TOP OF PAVEMENT).



NOTE:
MINIMUM COVER FROM TOP OF TANK TO FINISH GRADE MUST BE AT LEAST 30" TO MEET A 45 KIP OUTRIGGER LOAD ON AN 18'X18" PAD.

R-TANK^{SD} & HS-20 LOADS - SECTION VIEW

NOTES:
1. FOR COMPLETE MODULE DATA, SEE APPROPRIATE R-TANK^{SD} MODULE SHEET .
2. INSTALLATIONS PER THIS DETAIL MEET GUIDELINES OF HL-93 LOADING PER THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, CUSTOMARY U.S. UNITS, 7TH EDITION, 2014 WITH 2015 AND 2016 INTERIM REVISIONS.
3. PRE-TREATMENT STRUCTURES NOT SHOWN.
4. FOR INFILTRATION APPLICATIONS, GEOTEXTILE ENVELOPING R-TANK SHALL BE TENCATE MIRAFI FW-402 WOVEN (PER SPEC SECTION 2.02A) AND BASE SHALL BE 4" MIN. UNCOMPACTED FREE DRAINING BACKFILL (SPEC SECTION 2.03A) TO PROVIDE A LEVEL BASE. SURFACE MUST BE SMOOTH, FREE OF LUMPS OR DEBRIS, AND EXTEND 2' BEYOND R-TANK^{SD} FOOTPRINT.



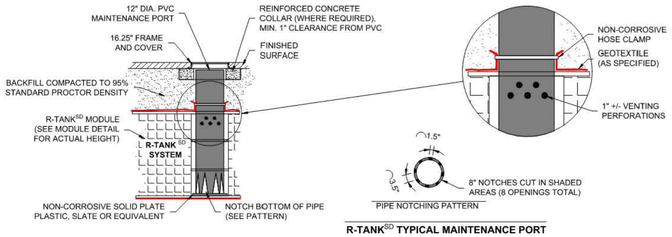
SIZE	A	B
23" x 24"	23"	26.51"
28" x 30"	28"	33.15"
34" x 36"	34"	38.69"

±0.25" TOLERANCE ON DIMENSIONS

NOTE:
TRASHGUARD PLUS UNITS ARE RECOMMENDED TO BE INSTALLED IN ALL CATCH BASINS DIRECTLY CONNECTED UPSTREAM OF THE R-TANK SYSTEM.

TRASHGUARD PLUS PRETREATMENT DETAIL

NOTES
1. THIS PORT IS USED TO PUMP WATER INTO THE SYSTEM AND RE-SUSPEND ACCUMULATED SEDIMENT SO THAT IT MAY BE PUMPED OUT.
2. MINIMUM REQUIRED MAINTENANCE INCLUDES A QUARTERLY INSPECTION DURING THE FIRST YEAR OF OPERATION AND A YEARLY INSPECTION THEREAFTER. FLUSH AS NEEDED.
3. R-TANK^{HD}, R-TANK^{SD}, R-TANK^{LD} AND R-TANK^{XD} MAY BE USED IN TRAFFIC APPLICATIONS.
4. SEE TRAFFIC LOADING DETAIL FOR MINIMUM & MAXIMUM COVER REQUIREMENTS.
5. IF MAINTENANCE PORT IS LOCATED IN A NON-TRAFFIC AREA, A PLASTIC CAP CAN BE USED IN LIEU OF A FRAME AND COVER WITH CONCRETE COLLAR.



R-TANK^{SD} TYPICAL MAINTENANCE PORT

R-TANK^{SD} SYSTEM DETAILS
EAST TOWN CROSSING
PUYALLUP, WA
SITE DESIGNATION: R-TANK 2

DRAWN BY: EDQ
DATE: 02/21/2024
ACF WEST PROJECT NUMBER: 23-004WA
SHEET NO.: 4 of 8

Know what's **below.** **Call** before you dig.

APPROVED

BY _____
CITY OF PUYALLUP
DEVELOPMENT ENGINEERING

DATE _____

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02/20/2024

TODD CHRISTOPHER SWINT — STATE OF WASHINGTON — 24416 — REGISTERED PROFESSIONAL ENGINEER
02/21/2024

4
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1 01/29/24 CITY COMMENTS

Revisions:

Sheet Title:

R-TANK 2 NOTES AND DETAILS

Designed by:	Drawn by:	Checked by:
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Sheet No.

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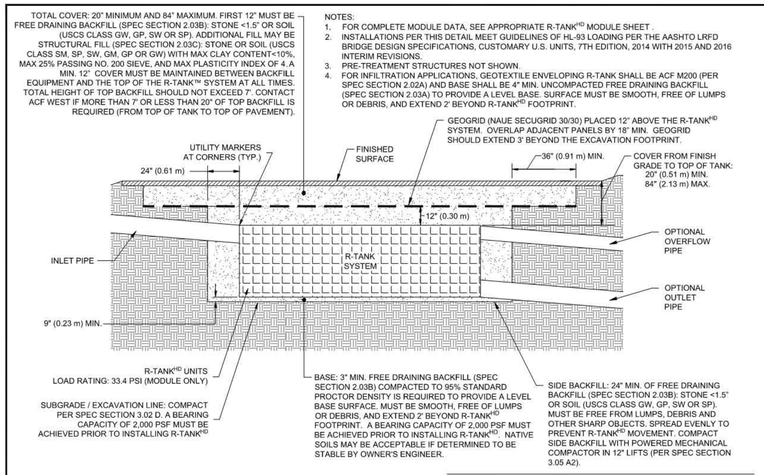
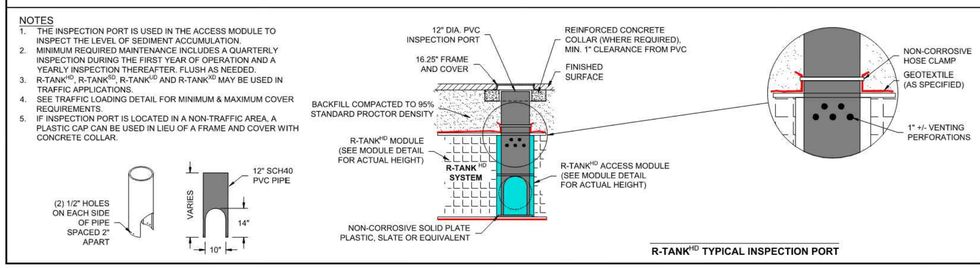
28 of 53 Sheets

EAST TOWN CROSSING PHASE 1
SEC. 26,35/ TWP. 20 N./ RGE. 4 E., W.M.



R-TANK^HD & HS-20 LOADS - SECTION VIEW

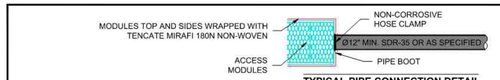
NOTES
1. THE INSPECTION PORT IS USED IN THE ACCESS MODULE TO INSPECT THE LEVEL OF SEDIMENT ACCUMULATION.
2. MINIMUM REQUIRED MAINTENANCE INCLUDES A QUARTERLY INSPECTION DURING THE FIRST YEAR OF OPERATION AND A YEARLY INSPECTION THEREAFTER. FLUSH AS NEEDED.
3. R-TANK^HD, R-TANK^HD, R-TANK^HD AND R-TANK^HD MAY BE USED IN TRAFFIC APPLICATIONS.
4. SEE TRAFFIC LOADING DETAIL FOR MINIMUM & MAXIMUM COVER REQUIREMENTS.
5. IF INSPECTION PORT IS LOCATED IN A NON-TRAFFIC AREA, A PLASTIC CAP CAN BE USED IN LIEU OF A FRAME AND COVER WITH CONCRETE COLLAR.



R-TANK^HD TYPICAL INSPECTION PORT

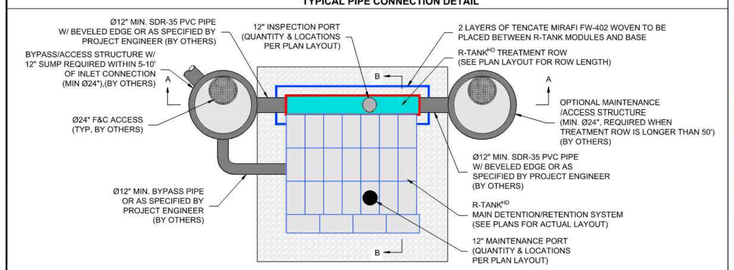
R-TANK^HD SYSTEM DETAILS
EAST TOWN CROSSING
PUYALLUP, WA
SITE DESIGNATION: R-TANK 2

DRAWN BY: EDQ
DATE: 02/21/2024
ACF WEST PROJECT NUMBER: 23-004WA
SHEET NO.: 5 of 8

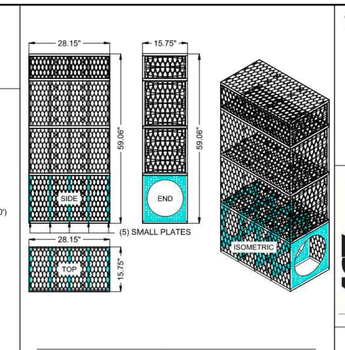


TYPICAL PIPE CONNECTION DETAIL

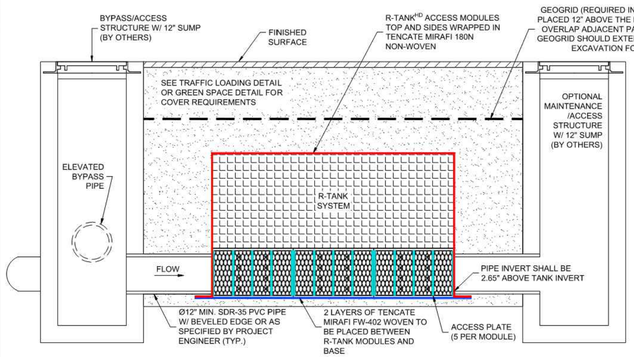
NOTE:
IF PIPE CONNECTING TO TREATMENT ROW IS LARGER THAN Ø12" SDR-35, IT SHALL BE ABUTTED FLUSH TO END PLATE AND SEALED WITH A PIPE BOOT.



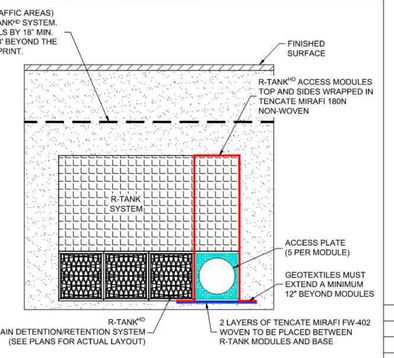
R-TANK^HD TREATMENT ROW WITH PRECAST INLET/ACCESS STRUCTURE



TRIPLE + MINI R-TANK^HD - ACCESS MODULE DETAIL
(FOR MODULE DATA, SEE STANDARD MODULE DETAIL)



R-TANK^HD TREATMENT ROW SECTION A-A



R-TANK^HD TREATMENT ROW SECTION B-B

R-TANK^HD TREATMENT ROW DETAILS
EAST TOWN CROSSING
PUYALLUP, WA
SITE DESIGNATION: R-TANK 2

DRAWN BY: EDQ
DATE: 02/21/2024
ACF WEST PROJECT NUMBER: 23-004WA
SHEET NO.: 6 of 8

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DEVELOPMENT ENGINEERING

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Sheet No.

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EAST TOWN CROSSING PHASE 1

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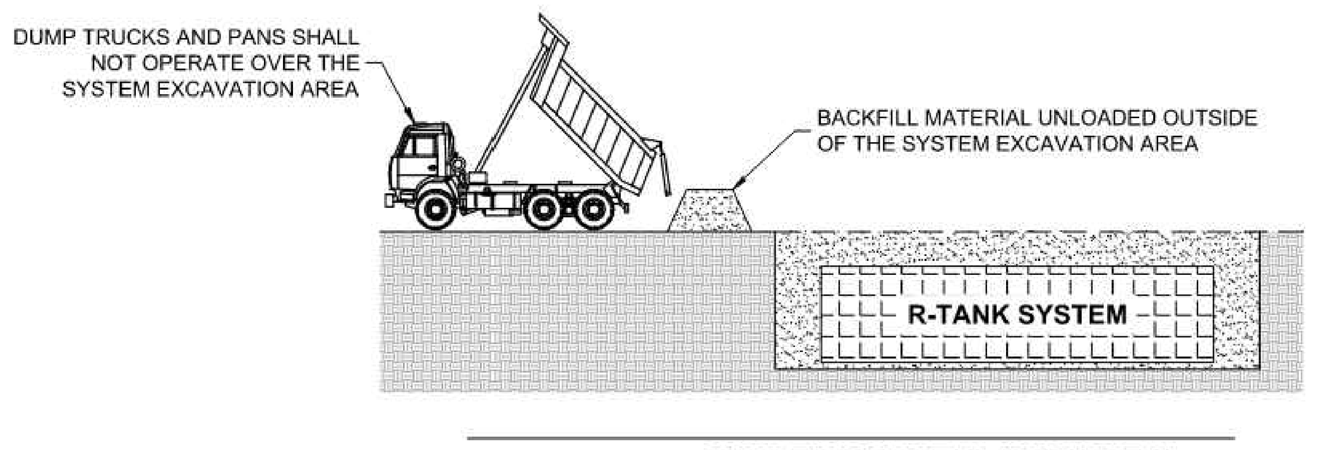
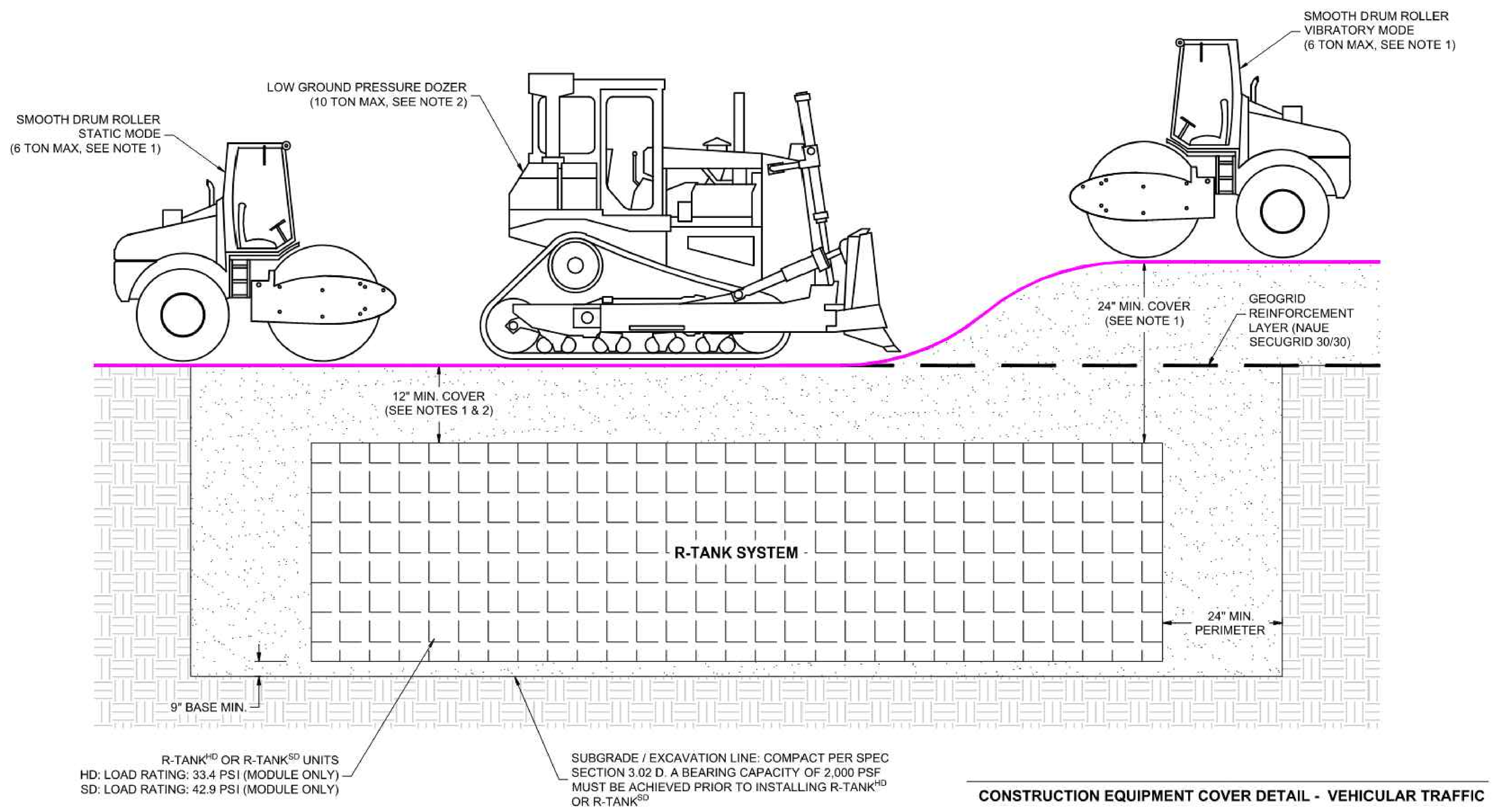


DUMP TRUCK DETAIL (SEE NOTE 3)

NOTES:

1. FOLLOWING PLACEMENT OF SIDE BACKFILL, A UNIFORM 12" LIFT OF THE FREELY DRAINING MATERIAL (SPEC SECTION 2.03 B2) SHALL BE PLACED OVER THE R-TANK AND LIGHTLY COMPACTED USING A WALK-BEHIND TRENCH ROLLER. ALTERNATELY, A ROLLER (MAXIMUM GROSS VEHICLE WEIGHT OF 6 TONS) MAY BE USED. ROLLER MUST REMAIN IN STATIC MODE UNTIL A MINIMUM OF 24" OF COVER HAS BEEN PLACED OVER THE MODULES. SHEEP FOOT ROLLERS SHOULD NOT BE USED. **SPEC SECTION 3.05 A5**
2. ONLY LOW PRESSURE TIRE OR TRACK VEHICLES (LESS THAN 7 PSI AND OPERATING WEIGHT OF LESS THAN 20,000 LBS) SHALL BE OPERATED OVER THE R-TANK SYSTEM DURING CONSTRUCTION. **SPEC SECTION 3.05 A5**
3. DUMP TRUCKS AND PANS SHALL NOT BE OPERATED WITHIN THE R-TANK SYSTEM AT ANY TIME. WHERE NECESSARY, THE HEAVY EQUIPMENT SHOULD UNLOAD IN AN AREA ADJACENT TO THE R-TANK SYSTEM AND THE MATERIAL SHOULD BE MOVED OVER THE SYSTEM WITH TRACKED EQUIPMENT. **SPEC SECTION 3.05 A5**
4. ENSURE THAT ALL UNRELATED CONSTRUCTION TRAFFIC IS KEPT AWAY FROM THE LIMITS OF EXCAVATION UNTIL THE PROJECT IS COMPLETE AND FINAL SURFACE MATERIALS ARE IN PLACE. NO NON-INSTALLATION RELATED LOADING SHOULD BE ALLOWED OVER THE R-TANK SYSTEM UNTIL THE FINAL DESIGN SECTION HAS BEEN CONSTRUCTED (INCLUDING PAVEMENT). **SPEC SECTION 3.05 B**
5. SEE R-TANK INSTALLATION GUIDE OR CONTACT YOUR LOCAL ACF WEST REPRESENTATIVE FOR ADDITIONAL INFORMATION.



CONSTRUCTION EQUIPMENT COVER DETAIL - VEHICULAR TRAFFIC

R-TANK SD — ENGINEER OF RECORD TO REVIEW, APPROVE AND ENDORSE FINAL SITE SPECIFIC DESIGN.

ACF WEST INC. GEOSYNTHETICS — Products | Service | Solutions — FOR ADDITIONAL INFORMATION PLEASE CONTACT ACF WEST: 1-800-423-4567 · www.acfwest.com

R-TANK SD CONSTRUCTION EQUIPMENT COVER DETAIL
EAST TOWN CROSSING
PUYALLUP, WA
SITE DESIGNATION: R-TANK 2

DRAWN BY: EDQ
DATE: 02/21/2024
ACF WEST PROJECT NUMBER: 23-004WA
SHEET NO.: 7 of 8

R-TANK SPECIFICATION

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings, technical specification and general provisions of the Contract as modified herein apply to this section.

1.02 DESCRIPTION OF WORK INCLUDED

A. Provide excavation and base preparation per geotechnical engineer's recommendations and/or as shown on the design drawings, to provide adequate support for project design loads and safety from excavation sidewall collapse. Excavations shall be in accordance with the owner's and OSHA requirements.
B. Provide and install R-TankLD/, R-TankHD/, R-TankSD/, or R-TankU/D/ system (hereafter called R-Tank) and all related products including fill materials, geotextiles, geogrids, inlet and outlet pipe with connections per the manufacturer's installation guidelines provided in this section.
C. Provide and construct the cover of the R-Tank system including; stone backfill, structural fill cover, and pavement section as specified.
D. Protect R-Tank system from construction traffic after installation until completion of all construction activity in the installation area.

1.03 QUALITY CONTROL

A. All materials shall be manufactured in ISO certified facilities.
B. Installation Contractor shall demonstrate the following experience:
   1. A minimum of three R-Tank or equivalent projects completed within 2 years; and,
   2. A minimum of 25,000 cubic feet of storage volume completed within 2 years.
   3. Contractor experience requirement may be waived if the manufacturer's representative provides on-site training and review during construction.
C. Installation Personnel: Performed only by skilled workers with satisfactory record of performance on bulk earthworks, pipe, chamber, or pond/landfill construction projects of comparable size and quality.
D. Contractor must have manufacturer's representative available for site review if requested by Owner.

1.04 SUBMITTALS

A. Submit proposed R-Tank layout drawings. Drawings shall include typical section details as well as the required base elevation of stone and tanks, minimum cover requirements and tank configuration.
B. Submit manufacturer's product data, including compressive strength and unit weight.
C. Submit manufacturer's installation instructions.
D. Submit R-Tank sample for review. Reviewed and accepted samples will be returned to the Contractor.
E. Submit material certificates for geotextile, geogrid, base course and backfill materials.
F. Submit required experience and personnel requirements as specified in Section 1.03.
G. Any proposed equal alternative product substitution to this specification must be submitted for review and approved prior to bid opening. Review package should include third party reviewed performance data that meets or exceeds criteria in Table 2.01 B.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Protect R-Tank and other materials from damage during delivery, and store UV sensitive materials under tarp to protect from sunlight when time from delivery to installation exceeds two weeks. Storage of materials should be on smooth surfaces, free from dirt, mud and debris.
B. Handling is to be performed with equipment appropriate to the materials and site conditions, and may include hand, handcart, forklifts, extension lifts, etc.
C. Cold weather:
   1. Care must be taken when handling plastics when air temperature is 40 degrees or below as plastic becomes brittle.
   2. Do not use frozen materials or materials mixed or coated with ice or frost.
   3. Do not build on frozen ground or wet, saturated or muddy subgrade.

1.06 PREINSTALLATION CONFERENCE.

A. Prior to the start of the installation, a preinstallation conference shall occur with the representatives from the design team, the general contractor, the excavation contractor, the R-Tank installation contractor, and the manufacturer's representative.

1.07 PROJECT CONDITIONS

A. Coordinate installation for the R-Tank system with other on-site activities to eliminate all non-installation related construction traffic over the completed R-Tank system. No loads heavier than the design loads shall be allowed over the system, and in no case shall loads higher than a standard AASHTO HS20 (or HS25, depending on design criteria) load be allowed on the system at any time.
B. Protect adjacent work from damage during R-Tank system installation.
C. All pre-treatment systems to remove debris and heavy sediments must be in place and functional prior to operation of the R-Tank system. Additional pretreatment measures may be needed if unit is operational during construction due to increased sediment loads.
D. Contractor is responsible for any damage to the system during construction.

PART 2 - PRODUCTS

2.01 R-TANK UNITS

A. R-Tank - Injection molded plastic tank plates assembled to form a 95% void modular structure of predesigned height (custom for each project).
B. R-Tank units shall meet the following Physical & Chemical Characteristics:

PROPERTY	DESCRIPTION	R-Tank LD VALUE	R-Tank HD VALUE	R-Tank SD VALUE	R-Tank UD VALUE
Void Area	Volume available for water storage	95%	95%	95%	95%
Surface Void Area	Percentage of exterior available for infiltration	90%	90%	90%	90%
Vertical Compressive Strength	ASTM D 2412 / ASTM F 2418	30.0 psi	33.4 psi	42.9 psi	134.2 psi
Lateral Compressive Strength	ASTM D 2412 / ASTM F 2418	20.0 psi	22.4 psi	26.8 psi	N/A
HS-20 Minimum Cover	Cover required to support HS-20 loads	N/A	20"	18"	12" (STONE BACKFILL)
HS-25 Minimum Cover	Cover required to support HS-25 loads	N/A	24"	19"	15" (STONE BACKFILL)
Maximum Cover	Maximum allowable cover depth	5 feet	< 7 feet	< 10 feet	5 feet
Unit Weight	Weight of plastic per cubic foot of tank	3.29 lbs / cf	3.62 lbs/cf	3.96 lbs / cf	4.33 lbs / cf
Rib Thickness	Thickness of load-bearing members	0.18 inches	0.18 inches	0.18 inches	N/A
Service Temperature	Safe temperature range for use	-14 – 167° F	-14 – 167° F	-14 – 167° F	-14 – 167° F

C. Supplier: ACF West 15540 Woodinville-Redmond Rd., Woodinville, Washington 98072, (425) 415-6115, www.acfwest.com

2.02 GEOSYNTHETICS

A. Geotextile. A geotextile envelope is required to prevent backfill material from entering the R-Tank modules.
   1. Standard Application: The standard geotextile shall be an 8 oz per square yard nonwoven geotextile (TenCate Mirafi 180N or equivalent).
   2. Infiltration Applications: When water must infiltrate/exfiltrate through the geotextile as a function of the system design, a woven monofilament (TenCate Mirafi FW402 or equivalent) shall be used.
B. Geogrid. For installations subject to traffic loads and/or when required by project plans, install geogrid (Naue Secugrid 30/30 or equivalent) to reinforce backfill above the R-Tank system. Geogrid is not always required for R-TankUD/ installations, and is often not required for non-traffic load applications.
C. MANUFACTURED 30 MIL. (MIN) IMPERMEABLE LINER TO PREVENT GROUNDWATER INTRUSION.

2.03 BACKFILL & COVER MATERIALS

A. Bedding Materials: Stone (angular and smaller than 1.5" in diameter) or soil (GW, GP, SW, or SP as classified by the Unified Soil Classification System) shall be used below the R-Tank system (3" minimum). Material must be free from lumps, debris, and any sharp objects that could cut the geotextile. Material shall be within 3 percent of the optimum moisture content as determined by ASTM D698 at the time of installation. For infiltration applications bedding material shall be free draining.
B. Side and Top Backfill: Material must be free from lumps, debris and any sharp objects that could cut the geotextile. Material shall be within 3 percent of the optimum moisture content as determined by ASTM D698 at the time of installation.
   1. Traffic Applications - Free draining material shall be used adjacent to (24" minimum) and above (for the first 12") the R-Tank system.
   a. For HD, and SD modules, backfill materials shall be free draining stone (angular and smaller than 1.5" in diameter) or soil (GW, GP, SW, or SP as classified by the Unified Soil Classification System).
   b. For UD modules with less than 14" of top cover, backfill materials shall be free draining stone (angular and smaller than 1.5" in diameter). The use of soil backfill on the sides and top of the UD module is not permitted unless the modules are installed outside of traffic areas or with cover depths of 14" or more. Top backfill material (from top of module to bottom of pavement base or 12" maximum) must be consistent with side backfill.
   2. Non-Traffic / Green Space Applications - For all R-Tank modules installed in green spaces and not subjected to vehicular loads, backfill materials may either follow the guidelines for Traffic Applications above, or the top backfill layer (12" minimum) may consist of AASHTO #57 stone blended with 30-40% (by volume) topsoil to aid in establishing vegetation.
C. Additional Cover Materials: Structural Fill shall consist of granular materials meeting the gradational requirements of SM, SP, SW, GM, GP or GW as classified by the Unified Soil Classification System. Structural fill shall have a maximum of 25 percent passing the No. 200 sieve, shall have a maximum clay content of 10 percent and a maximum Plasticity Index of 4. Material shall be within 3 percent of the optimum moisture content as determined by ASTM D698 at the time of installation.

2.04 OTHER MATERIALS

A. Utility Marker: Install metallic tape at corners of R-Tank system to mark the area for future utility detection.

PART 3 - EXECUTION

3.01 ASSEMBLY OF R-TANK UNITS

A. Assembly of modules shall be performed in accordance with the R-Tank Installation Manual, Section 2.

3.02 LAYOUT AND EXCAVATION

A. Installer shall stake out, excavate, and prepare the subgrade area to the required plan grades and dimensions, ensuring that the excavation is at least 2 feet greater than R-Tank dimensions in each direction allowing for installation of geotextile filter fabric, R-Tank modules, and free draining backfill materials.
B. All excavations must be prepared with OSHA approved excavated sides and sufficient working space.
C. Protect partially completed installation against damage from other construction traffic by establishing a perimeter with high visibility construction tape, fencing, barricades, or other means until construction is complete.
D. Base of the excavation shall be uniform, level, and free of lumps or debris and soft or yielding subgrade areas. A minimum 2,000 pounds per square foot bearing capacity is required.
   1. Standard Applications: Compact subgrade to a minimum of 95% of Standard Proctor (ASTM D698) density or as required by the Owner's engineer.
   2. Infiltration Applications: Subgrade shall be prepared in accordance with the contract documents. Compaction of subgrade should not be performed in infiltration applications.
E. Unsuitable Soils or Conditions: All questions about the base of the excavation shall be directed to the owner's engineer, who will approve the subgrade conditions prior to placement of stone. The owner's engineer shall determine the required bearing capacity of the R-Tank subgrade; however in no case shall a bearing capacity of less than 2,000 pounds per square foot be provided.
   1. If unsuitable soils are encountered at the subgrade, or if the subgrade is pumping or appears excessively soft, repair the area in accordance with contract documents and/or as directed by the owner's engineer.
   2. If indications of the water table are observed during excavation, the engineer shall be contacted to provide recommendations.
   3. Do not start installation of the R-Tank system until unsatisfactory subgrade conditions are corrected and the subgrade conditions are accepted by the owner's engineer.

3.03 PREPARATION OF BASE

A. Place a thin layer (3" unless otherwise specified) of bedding material (Section 2.03 A), over the subgrade to establish a level working platform for the R-Tank modules. Level to within ½" (+/- ¼") or as shown on the plans. Native subgrade soils or other materials may be used if determined to meet the requirements of 2.03 A and are accepted by the owner's engineer.
   1. Standard Applications: Static roll or otherwise compact bedding materials until they are firm and unyielding.
   2. Infiltration Applications: Bedding materials shall be prepared in accordance with the contract documents.
B. Outline the footprint of the R-Tank system on the excavation floor using spray paint or chalk line to ensure a 2' perimeter is available around the R-Tank system for proper installation and compaction of backfill.

3.04 INSTALLATION OF THE R-TANKS

A. Where a geotextile wrap is specified on the stone base, cut strips to length and install in excavation, removing wrinkles so material lays flat. Overlap geotextile a minimum 12" or as recommended by manufacturer. Use tape, special adhesives, sandbags or other ballast to secure overlaps. As geotextiles can be damaged by extreme heat, smoking is not permissible on/near the geotextile, and tools using a flame to tack the overlaps, such as propane torches, are prohibited.
B. Where an impervious liner (for containment) is specified, install the liner per manufacturer's recommendations and the contract documents. The R-Tank units shall be separated from impervious liner by a non-woven geotextile fabric installed accordance with Section 3.04A.
C. Install R-Tank modules by placing side by side, in accordance with the design drawings. No lateral connections are required. It is advisable to use a string line to form square corners and straight edges along the perimeter of the R-Tank system. The modules are to be oriented as per the design drawing with required depth as shown on plans.
   1. For LD, HD, and SD installations, the large side plate of the tank should be placed on the perimeter of the system. This will typically require that the two ends of the tank area will have a row of tanks placed perpendicular to all other tanks. If this is not shown in the construction drawings, it is a simple field adjustment that will have minimal effect on the overall system footprint. Refer to R-Tank Installation Guide for more details
   2. For UD installations, there is no perpendicular end row required.
D. Wrap the R-Tank top and sides in specified geotextile. Cut strips of geotextile so that it will cover the sides and top, encapsulating the entire system to prevent backfill entry into the system. Overlap geotextile 12" or as recommended by manufacturer. Take great care to avoid damage to geotextile (and, if specified, impervious liner) during placement.
E. Identify locations of inlet, outlet and any other penetrations of the geotextile (and optional liner). These connections should be installed flush (butted up to the R-Tank) and the geotextile fabric shall be cut to enable hydraulic continuity between the connections and the R-Tank units. These connections shall be secured using pipe boots with stainless steel pipe clamps. Support pipe in trenches during backfill operations to prevent pipe from settling and damaging the geotextile, impervious liner (if specified) or pipe. Connecting pipes at 90 degree angles facilitates construction, unless otherwise specified. Ensure end of pipe is installed snug against R-Tank system.
F. Install Inspection and Maintenance Ports in locations noted on plans. At a minimum one maintenance port shall be installed within 10' of each inlet & outlet connection, and with a maximum spacing of one maintenance port for every 2,500 square feet. Install all ports as noted in the R-Tank Installation Guide.
G. If required, install ventilation pipes and vents as specified on drawings to provide ventilation for proper hydraulic performance. The number of pipes and vents will depend on the size of the system. Vents are often installed using a 90 degree elbow with PVC pipe into a landscaped area with "U" bend or venting bollard to inhibit the ingress of debris. A ground level concrete or steel cover can be used.

3.05 BACKFILLING OF THE R-TANK UNITS

A. Backfill and fill with recommended materials as follows:
   1. Place freely draining backfill materials (Section 2.03 B) around the perimeter in lifts with a maximum thickness of 12". Each lift shall be placed around the entire perimeter such that each lift is no more than 24" higher than the side backfill along any other location on the perimeter of the R-Tank system. No fill shall be placed over top of tanks until the side backfill has been completed.
   2. Each lift shall be compacted at the specified moisture content to a minimum of 95% of the Standard Proctor Density until no further densification is observed (for self-compacting stone materials). The side lifts must be compacted with walk behind compaction equipment. Even when "self-compacting" backfill materials are selected, a walk behind vibratory compactor must be used.
   3. Take care to ensure that the compaction process does not allow the machinery to come into contact with the modules due to the potential for damage to the geotextile and R-Tank units.
   4. No compaction equipment is permissible to operate directly on the R-Tank modules.
   5. Top Backfill: Only low pressure track vehicles shall be operated over the R-Tank system during construction. Dump Trucks and Pans shall not be operated within the R-Tank system footprint at any time. Heavy equipment should unload in an area adjacent to the R-Tank system and the material should be moved over the system using tracked equipment with an operating weight of less than 10 tons.
      a. Typical Applications: Install a 12" (or as shown on plans) lift of freely draining material (Section 2.03 B) over the R-Tank Units, maintaining 12" between equipment tracks and R-Tank System. Lightly compacted using a walk-behind trench roller. Alternately, a roller (maximum gross vehicle weight of 6 tons) may be used. Roller must remain in static mode until a minimum of 24" of cover has been placed over the modules. Sheep foot rollers should not be used.
      b. Shallow Applications (< 18" total cover): Install top backfill in accordance with plans.
   6. If required, install a geogrid as shown on plans. Geogrid shall extend a minimum of 3 feet beyond the limits of the excavation wall.
   7. Following placement and compaction of the initial cover, subsequent lifts of structural fill (Section 2.03 C) shall be placed at the specified moisture content and compacted to a minimum of 95% of the Standard Proctor Density and shall cover the entire footprint of the R-Tank system. During placement of fill above the system, unless otherwise specified, a uniform elevation of fill shall be maintained to within 12" across the footprint of the R-Tank system. Do not exceed maximum cover depths listed in Table 2.01 B.
   8. Place additional layers of geotextile and/or geogrid at elevations as specified in the design details. Each layer of geosynthetic reinforcement placed above the R-Tank system shall extend a minimum of 3 feet beyond the limits of the excavation wall.
B. Ensure that all unrelated construction traffic is kept away from the limits of excavation until the project is complete and final surface materials are in place. No non-installation related loading should be allowed over the R-Tank system until the final design section has been constructed (including pavement).
C. Place surfacing materials, such as groundcovers (no large trees), or paving materials over the structure with care to avoid displacement of cover fill and damage to surrounding areas.
D. Backfill depth over R-Tank system must be within the limitations shown in the table in Section 2.01 B. If the total backfill depth does not comply with this table, contact engineer or manufacturer's representative for assistance.

3.06 MAINTENANCE REQUIREMENTS

A. A routine maintenance effort is required to ensure proper performance of the R-Tank system. The Maintenance program should be focused on pretreatment systems. Ensuring these structures are clean and functioning properly will reduce the risk of contamination of the R-Tank system and stormwater released from the site. Pre-treatment systems shall be inspected yearly, or as directed by the regulatory agency and by the manufacturer (for proprietary systems). Maintain as needed using acceptable practices or following manufacturer's guidelines (for proprietary systems).
B. All inlet pipes and Inspection and/or Maintenance Ports in the R-Tank system will need to be inspected for accumulation of sediments at least quarterly through the first year of operation and at least yearly thereafter.
C. If sediment has accumulated to the level noted in the R-Tank Maintenance Guide or beyond a level acceptable to the Owner's engineer, the R-Tank system should be flushed.
D. All inspection and maintenance activities should be performed in accordance with the R-Tank Operation, Inspection & Maintenance Manual.

R-TANK SPECIFICATION
EAST TOWN CROSSING
PUYALLUP, WA
SITE DESIGNATION: R-TANK 2

DRAWN BY: EDQ
DATE: 02/21/2024
ACF WEST PROJECT NUMBER: 23-004WA
SHEET NO.: 8 of 8

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BY ____________________
CITY OF PUYALLUP DEVELOPMENT ENGINEERING

DATE ____________________

NOTE: THIS APPROVAL IS VOID AFTER 180 DAYS FROM APPROVAL DATE.
THE CITY WILL NOT BE RESPONSIBLE FOR ERRORS AND/OR OMISSIONS ON THESE PLANS.
FIELD CONDITIONS MAY DICTATE CHANGES TO THESE PLANS AS DETERMINED BY THE DEVELOPMENT ENGINEERING MANAGER.

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253.383.2422 TEL 253.383.2572 FAX www.ahbl.com WEB

Project Title: EAST TOWN CROSSING PHASE 1

Client: ASH DEVELOPMENT
GREG HELLE
GREG.HELLE@ASHNW.COM

Project No. 2230752

Issue Set & Date: PERMIT SUBMITTAL 02/20/2024

DAVID CHRISTOPHER SAWYER — STATE OF WASHINGTON — 46416 REGISTERED PROFESSIONAL ENGINEER — 02/21/2024

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Revisions:
4 ____
3 ____
2 ____
1 01/29/24 CITY COMMENTS

Sheet Title: R-TANK 2 NOTES AND DETAILS

Designed by:	Drawn by:	Checked by:
CW	SK / RS	JI

Sheet No. C4.23

EAST TOWN CROSSING PHASE 1
SEC. 26,35/ TWP. 20 N./ RGE. 4 E., W.M.

APPROVED

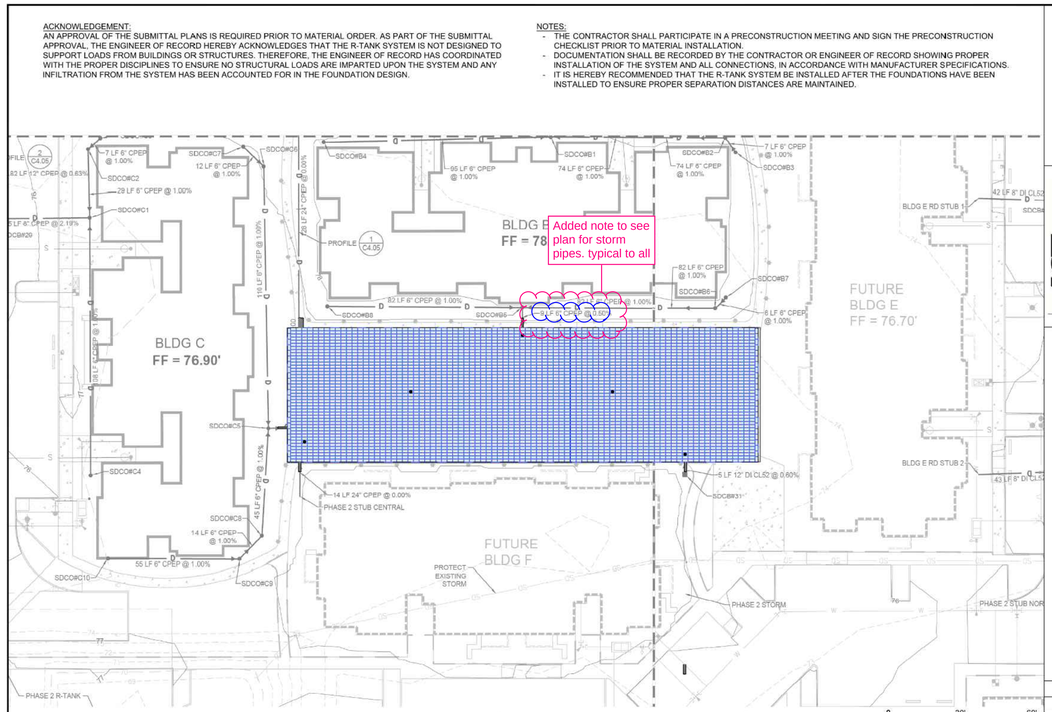
BY _____
CITY OF PUYALLUP
DEVELOPMENT ENGINEERING

DATE _____

NOTE: THIS APPROVAL IS VOID AFTER 180 DAYS FROM APPROVAL DATE.
THE CITY WILL NOT BE RESPONSIBLE FOR ERRORS AND/OR OMISSIONS ON THESE PLANS.
FIELD CONDITIONS MAY DICTATE CHANGES TO THESE PLANS AS DETERMINED BY THE DEVELOPMENT ENGINEERING MANAGER.

ACKNOWLEDGEMENT:
AN APPROVAL OF THE SUBMITTAL PLANS IS REQUIRED PRIOR TO MATERIAL ORDER. AS PART OF THE SUBMITTAL APPROVAL, THE ENGINEER OF RECORD HEREBY ACKNOWLEDGES THAT THE R-TANK SYSTEM IS NOT DESIGNED TO SUPPORT LOADS FROM BUILDINGS OR STRUCTURES. THEREFORE, THE ENGINEER OF RECORD HAS COORDINATED WITH THE PROPER DISCIPLINES TO ENSURE NO STRUCTURAL LOADS ARE IMPARTED UPON THE SYSTEM AND ANY INFILTRATION FROM THE SYSTEM HAS BEEN ACCOUNTED FOR IN THE FOUNDATION DESIGN.

NOTES:
- THE CONTRACTOR SHALL PARTICIPATE IN A PRECONSTRUCTION MEETING AND SIGN THE PRECONSTRUCTION CHECKLIST PRIOR TO MATERIAL INSTALLATION.
- DOCUMENTATION SHALL BE RECORDED BY THE CONTRACTOR OR ENGINEER OF RECORD SHOWING PROPER INSTALLATION OF THE SYSTEM AND ALL CONNECTIONS, IN ACCORDANCE WITH MANUFACTURER SPECIFICATIONS.
- IT IS HEREBY RECOMMENDED THAT THE R-TANK SYSTEM BE INSTALLED AFTER THE FOUNDATIONS HAVE BEEN INSTALLED TO ENSURE PROPER SEPARATION DISTANCES ARE MAINTAINED.



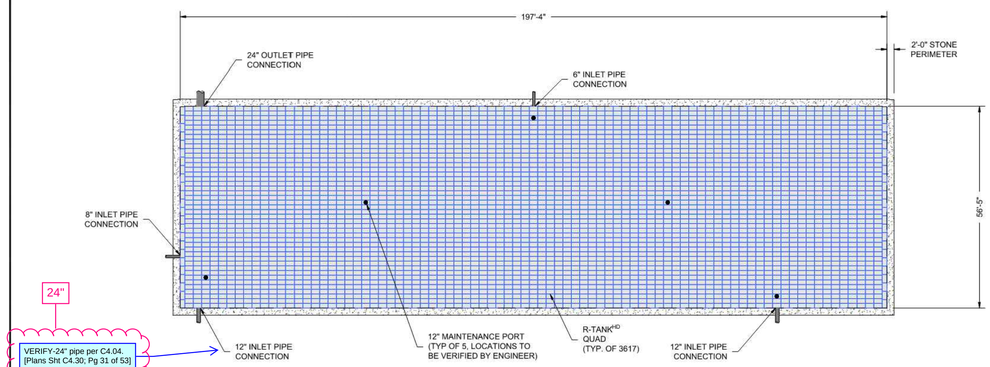
R-TANK^{HD} SYSTEM OVERLAY
SCALE: 1" = 30'

R-TANK^{HD} SYSTEM OVERLAY
EAST TOWN CROSSING
PUYALLUP, WA
SITE DESIGNATION: R-TANK 3

DRAWN BY: EDQ
DATE: 02/20/2024
ACF WEST PROJECT NUMBER: 23-004WA
SHEET NO: 1 of 6

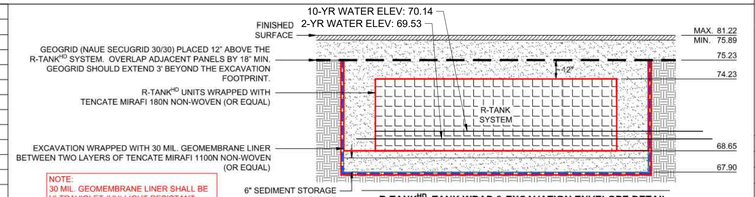
ENGINEER OF RECORD TO REVIEW, APPROVE AND ENDORSE FINAL SITE SPECIFIC DESIGN.

ACF WEST INC. GEOSYNTHETICS
Products | Service | Solutions
FOR ADDITIONAL INFORMATION PLEASE CONTACT: ACF WEST, T: 800-423-4567, www.acfwest.com



NOTES:
1. DEAD STORAGE VOLUME FROM ELEVATION 67.90 TO 68.40 = 2,433 CF
2. LIVE STORAGE VOLUME FROM ELEVATION 68.40 TO 74.27 = 62,464 CF
3. ONLY 3" OF BASE STONE INCLUDED IN LIVE STORAGE VOLUME.

LAYOUT SCALE	1" = 20'
R-TANK^{HD} MODULE TYPE	QUAD
TRAFFIC LOAD	HS-20
# OF QUAD R-TANKS	3,727
TOTAL SYSTEM STORAGE	62,464 CF
R-TANK STORAGE VOLUME	60,787 CF
STONE STORAGE VOLUME (40% VOID RATIO)	1,677 CF
NAUE SECUGRID 30/30 GEOGRID ELEV.	75.23
TOP OF COVER STONE ELEV. (12")	75.23
TOP OF R-TANK ELEV.	74.23
TANK INVERT	68.65
INVERT OF STONE BASE (9")	67.90
MIN. STONE PERIMETER WIDTH	2.0 FT
SEE SHEETS 3 - 6 FOR DETAILS AND ADDITIONAL INFORMATION	



NOTE:
30 MIL. GEOMEMBRANE LINER SHALL BE ULTRAVIOLET (UV) LIGHT RESISTANT.

R-TANK^{HD} TANK WRAP & EXCAVATION ENVELOPE DETAIL

R-TANK^{HD} SYSTEM LAYOUT
EAST TOWN CROSSING
PUYALLUP, WA
SITE DESIGNATION: R-TANK 3

DRAWN BY: EDQ
DATE: 02/20/2024
ACF WEST PROJECT NUMBER: 23-004WA
SHEET NO: 2 of 6

ENGINEER OF RECORD TO REVIEW, APPROVE AND ENDORSE FINAL SITE SPECIFIC DESIGN.

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Project Title:

EAST TOWN CROSSING PHASE 1

Client:
ASH DEVELOPMENT

GREG HELLE

GREG.HELLE@ASHNW.COM

Project No.
2230752

Issue Set & Date:

PERMIT SUBMITTAL

02/20/2024

TODD CHRISTOPHER SWAIN — STATE OF WASHINGTON — 4C416 — REGISTERED PROFESSIONAL ENGINEER
02/21/2024

Revisions:
- 4
- 3
- 2
- 1 01/29/24 CITY COMMENTS

Sheet Title:

R-TANK 3 NOTES AND DETAILS

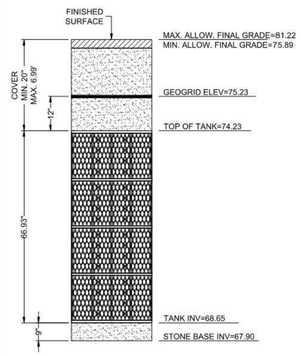
Designed by:	Drawn by:	Checked by:
CW	SK / RS	JI

Sheet No.

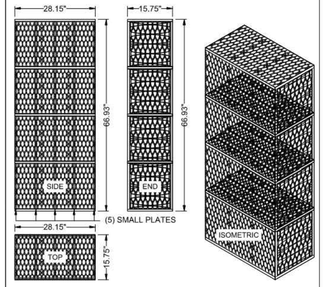
C4.30

31 of 53 Sheets

EAST TOWN CROSSING PHASE 1
SEC. 26,35/ TWP. 20 N./ RGE. 4 E., W.M.



QUAD R-TANK^{HD} - ELEVATION

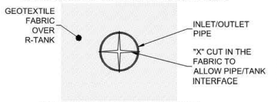


QUAD R-TANK^{HD} - MODULE DETAIL

MODULE DATA

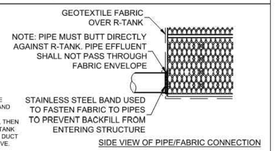
GEOMETRY:	**LOAD RATING:**
LENGTH = 28.15 IN. (715 MM)	33.4 PSI, (MODULE ONLY)
WIDTH = 15.75 IN. (400 MM)	HS20/HS25 - SEE SPEC FOR
HEIGHT = 66.93 IN. (1700 MM)	COVER REQUIREMENTS
TANK VOLUME = 17.17 CF	**MATERIAL:**
STORAGE VOLUME = 16.31 CF	100% RECYCLED POLYPROPYLENE
VOID INTERNAL VOLUME: 95%	**SMALL PLATES REQUIRED:**
VOID SURFACE AREA: 90%	5/SEGMENT, 20/MODULE

CUT AN "X" IN THE FABRIC ENVELOPE THAT IS SLIGHTLY LARGER THAN THE PIPE. PULL THE FABRIC FLAPS AROUND THE PIPE, AND SEAL WITH A STAINLESS STEEL BAND.

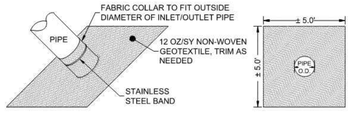


END VIEW OF PIPE/FABRIC CONNECTION

AFTER TANK WRAP IS SECURED TO PIPE, SLIDE BOOT AGAINST R-TANK AND SECURE WITH SECOND STAINLESS STEEL BAND. THEN ATTACH BOOT FLAP TO TANK ENVELOPE FABRIC WITH DUCT TAPE OR OTHER ADHESIVE.

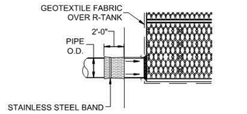


SIDE VIEW OF PIPE/FABRIC CONNECTION



GEOTEXTILE BOOT

FRONT VIEW OF GEOTEXTILE BOOT



SIDE VIEW OF GEOTEXTILE BOOT

R-TANK^{HD} TYPICAL TANK INLET/OUTLET W/ GEOTEXTILE PIPE BOOT DETAIL

R-TANK^{HD} QUANTITIES

R-TANK^{HD} MODULE TYPE	QUAD
# OF QUAD R-TANKS	3,617
TOTAL SYSTEM STORAGE	67,380 CF
R-TANK STORAGE VOLUME	58,993 CF
STONE STORAGE VOLUME (40% VOID RATIO)	8,387 CF
STONE BED FOOTPRINT	12,167 SF
STONE QUANTITY	1,002 CY
TENCATE MIRAFI 180N NON-WOVEN TANK WRAP	28,872 SF (3,208 SY)
30 MIL. GEOMEMBRANE LINER EXCAVATION WRAP	18,403 SF (2,045 SY)
TENCATE MIRAFI 1100N NON-WOVEN LINER PROTECTION	36,807 SF (4,090 SY)
NAUE SECUGRID 30/30 GEOGRID	14,599 SF (1,622 SY)
12" MAINTENANCE PORTS	5
8" PIPE BOOTS	2
12" PIPE BOOTS	2
24" PIPE BOOTS	1
TRASHGUARD PLUS UNITS (RECOMMENDED)	2
NOTE: STONE QUANTITY INCLUDES 12" OF COVER AND 9" OF BASE.	
NOTE: GEOTEXTILE / LINER QUANTITIES INCLUDE A 15% WASTE FACTOR.	

NOTE:
30 MIL. GEOMEMBRANE LINER SHALL BE ULTRAVIOLET (UV) LIGHT RESISTANT.

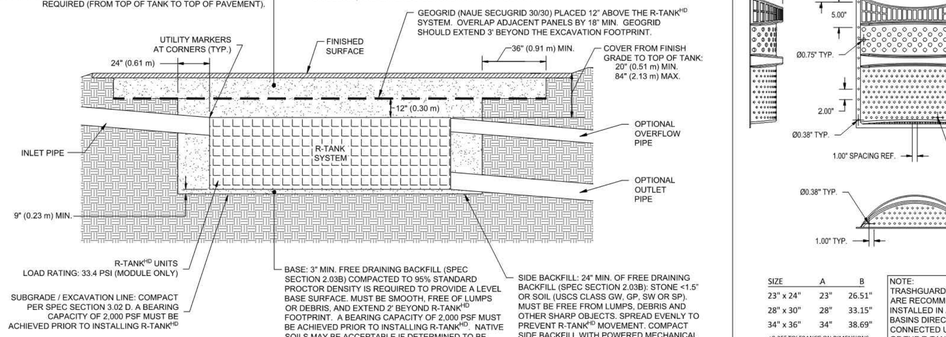
NOTES:
1. DEAD STORAGE VOLUME FROM ELEVATION 67.90 TO 68.40 = 2,433 CF
2. LIVE STORAGE VOLUME FROM ELEVATION 68.40 TO 75.23 = 67,380 CF
3. ONLY 3" OF BASE STONE INCLUDED IN LIVE STORAGE VOLUME.

R-TANK^{HD} SYSTEM DETAILS
EAST TOWN CROSSING
PUYALLUP, WA
SITE DESIGNATION: R-TANK 3

DRAWN BY: EDQ
DATE: 02/20/2024
ACF WEST PROJECT NUMBER: 23-004WA
SHEET NO: 3 of 6

TOTAL COVER: 20" MINIMUM AND 84" MAXIMUM. FIRST 12" MUST BE FREE DRAINING BACKFILL (SPEC SECTION 2.03B): STONE <1.5" OR SOIL (USCS CLASS GW, GP, SW OR SP). ADDITIONAL FILL MAY BE STRUCTURAL FILL (SPEC SECTION 2.03C): STONE OR SOIL (USCS CLASS SM, SP, SW, GM, GP OR GW) WITH MAX CLAY CONTENT<10%, MAX 25% PASSING NO. 200 SIEVE, AND MAX PLASTICITY INDEX OF 4. A MIN. 12" COVER MUST BE MAINTAINED BETWEEN BACKFILL EQUIPMENT AND THE TOP OF THE R-TANK™ SYSTEM AT ALL TIMES. TOTAL HEIGHT OF TOP BACKFILL SHOULD NOT EXCEED 7'. CONTACT ACF WEST IF MORE THAN 7' OR LESS THAN 20" OF TOP BACKFILL IS REQUIRED (FROM TOP OF TANK TO TOP OF PAVEMENT).

NOTES:
1. FOR COMPLETE MODULE DATA, SEE APPROPRIATE R-TANK^{HD} MODULE SHEET .
2. INSTALLATIONS PER THIS DETAIL MEET GUIDELINES OF HL-93 LOADING PER THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS. CUSTOMARY U.S. UNITS, 7TH EDITION, 2014 WITH 2015 AND 2016 INTERIM REVISIONS.
3. PRE-TREATMENT STRUCTURES NOT SHOWN.
4. FOR INFILTRATION APPLICATIONS, GEOTEXTILE ENVELOPING R-TANK SHALL BE ACF M200 (PER SPEC SECTION 2.02A) AND BASE SHALL BE 4" MIN. UNCOMPACTED FREE DRAINING BACKFILL (SPEC SECTION 2.03A) TO PROVIDE A LEVEL BASE. SURFACE MUST BE SMOOTH, FREE OF LUMPS OR DEBRIS, AND EXTEND 2' BEYOND R-TANK^{HD} FOOTPRINT.



R-TANK^{HD} & HS-20 LOADS - SECTION VIEW

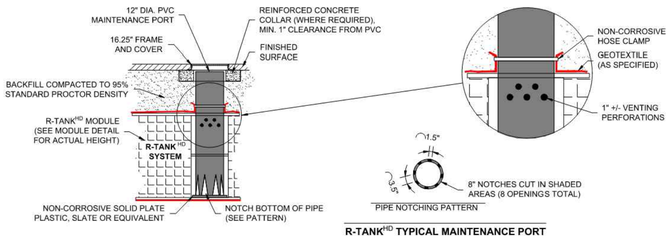
SIZE	A	B
23" x 24"	23"	26.51"
28" x 30"	28"	33.15"
34" x 36"	34"	38.69"

±0.25" TOLERANCE ON DIMENSIONS

NOTE:
TRASHGUARD PLUS UNITS ARE RECOMMENDED TO BE INSTALLED IN ALL CATCH BASINS DIRECTLY CONNECTED UPSTREAM OF THE R-TANK SYSTEM.

TRASHGUARD PLUS PRETREATMENT DETAIL

NOTES
1. THIS PORT IS USED TO PUMP WATER INTO THE SYSTEM AND RE-SUSPEND ACCUMULATED SEDIMENT SO THAT IT MAY BE PUMPED OUT.
2. MINIMUM REQUIRED MAINTENANCE INCLUDES A QUARTERLY INSPECTION DURING THE FIRST YEAR OF OPERATION AND A YEARLY INSPECTION THEREAFTER. FLUSH AS NEEDED.
3. R-TANK^{HD}, R-TANK^{HD}, R-TANK^{HD} AND R-TANK^{HD} MAY BE USED IN TRAFFIC APPLICATIONS.
4. SEE TRAFFIC LOADING DETAIL FOR MINIMUM & MAXIMUM COVER REQUIREMENTS.
5. IF MAINTENANCE PORT IS LOCATED IN A NON-TRAFFIC AREA, A PLASTIC CAP CAN BE USED IN LIEU OF A FRAME AND COVER WITH CONCRETE COLLAR.



R-TANK^{HD} TYPICAL MAINTENANCE PORT

R-TANK^{HD} SYSTEM DETAILS
EAST TOWN CROSSING
PUYALLUP, WA
SITE DESIGNATION: R-TANK 3

DRAWN BY: EDQ
DATE: 02/20/2024
ACF WEST PROJECT NUMBER: 23-004WA
SHEET NO: 4 of 6

Know what's **below.**
Call before you dig.

APPROVED

BY _____
CITY OF PUYALLUP
DEVELOPMENT ENGINEERING

DATE _____

NOTE: THIS APPROVAL IS VOID AFTER 180 DAYS FROM APPROVAL DATE.
THE CITY WILL NOT BE RESPONSIBLE FOR ERRORS AND/OR OMISSIONS ON THESE PLANS.
FIELD CONDITIONS MAY DICTATE CHANGES TO THESE PLANS AS DETERMINED BY THE DEVELOPMENT ENGINEERING MANAGER.

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Project Title:

EAST TOWN CROSSING PHASE 1

Client:
ASH DEVELOPMENT

GREG HELLE

GREG.HELLE@ASHNW.COM

Project No.
2230752

Issue Set & Date:

PERMIT SUBMITTAL

02/20/2024

TODD CHRISTOPHER SWINT — STATE OF WASHINGTON — 24416 — REGISTERED PROFESSIONAL ENGINEER
02/21/2024

1 01/29/24 CITY COMMENTS

Revisions:

Sheet Title:

R-TANK 3 NOTES AND DETAILS

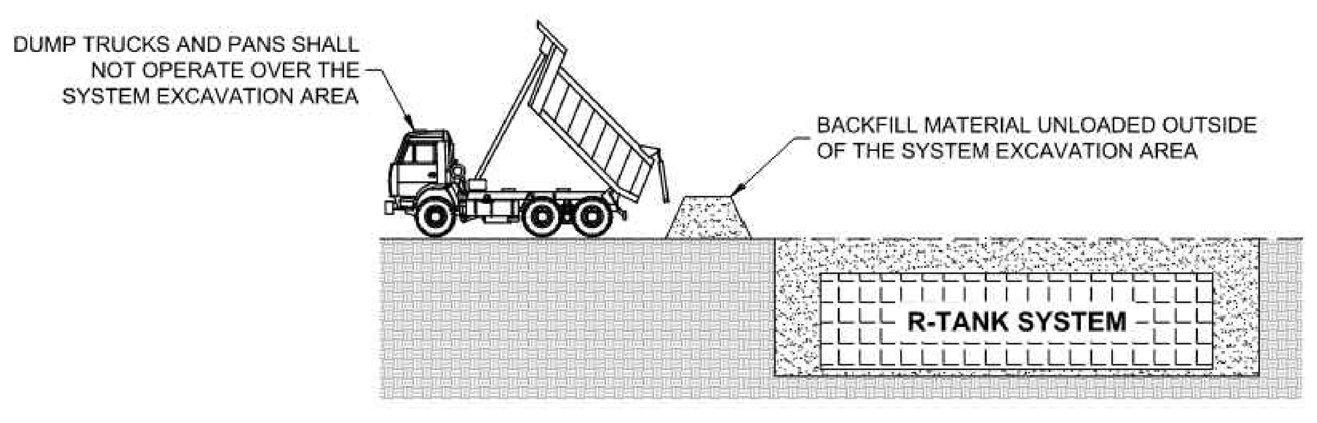
Designed by:	Drawn by:	Checked by:
CW	SK / RS	JI

Sheet No.

C4.31

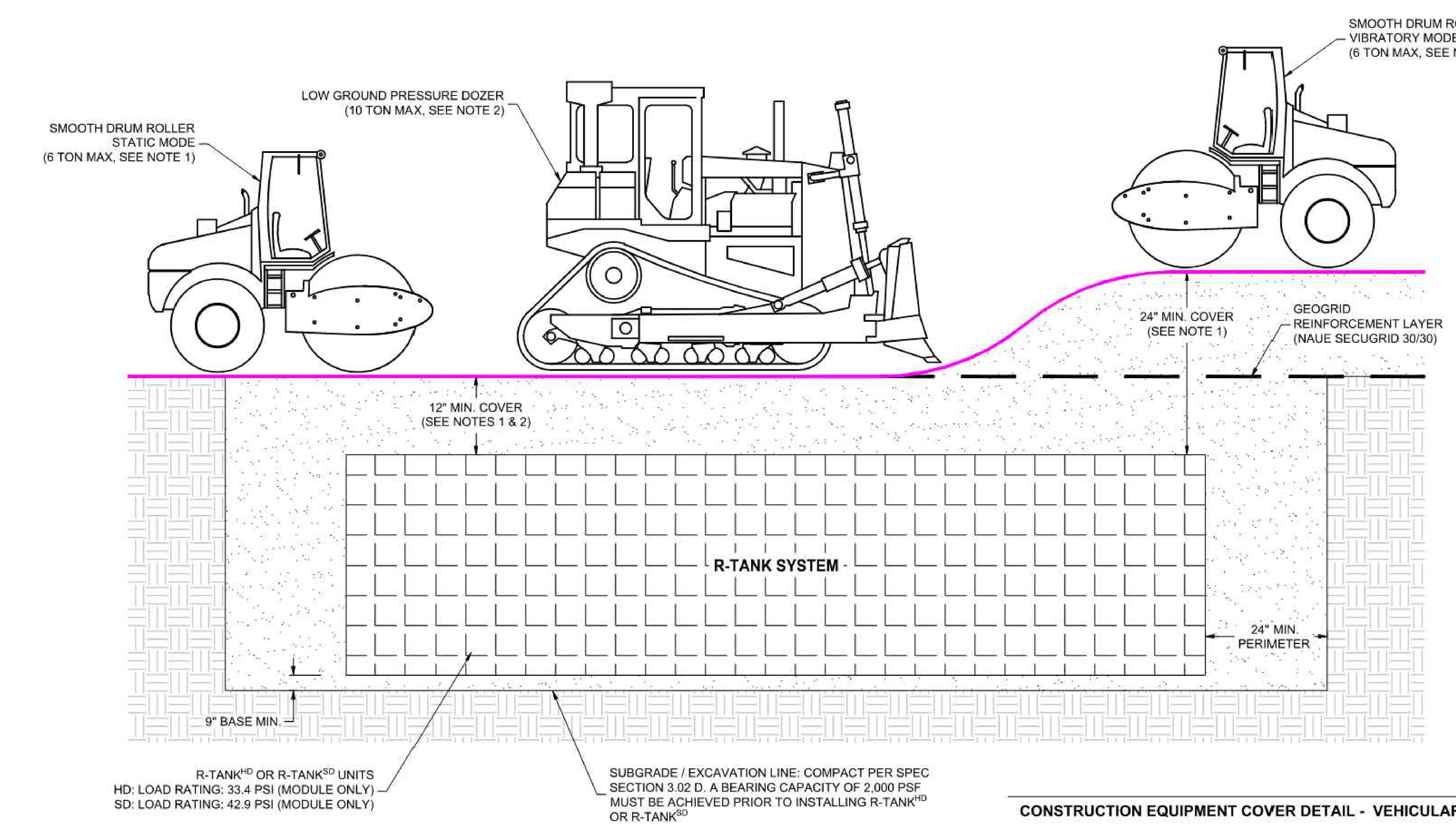
32 of 53 Sheets

EAST TOWN CROSSING PHASE 1
SEC. 26,35/ TWP. 20 N./ RGE. 4 E., W.M.



DUMP TRUCK DETAIL (SEE NOTE 3)

NOTES:
1. FOLLOWING PLACEMENT OF SIDE BACKFILL, A UNIFORM 12" LIFT OF THE FREELY DRAINING MATERIAL (SPEC SECTION 2.03 B2) SHALL BE PLACED OVER THE R-TANK AND LIGHTLY COMPACTED USING A WALK-BEHIND TRENCH ROLLER. ALTERNATELY, A ROLLER (MAXIMUM GROSS VEHICLE WEIGHT OF 6 TONS) MAY BE USED. ROLLER MUST REMAIN IN STATIC MODE UNTIL A MINIMUM OF 24" OF COVER HAS BEEN PLACED OVER THE MODULES. SHEEP FOOT ROLLERS SHOULD NOT BE USED. **SPEC SECTION 3.05 A5**
2. ONLY LOW PRESSURE TIRE OR TRACK VEHICLES (LESS THAN 7 PSI AND OPERATING WEIGHT OF LESS THAN 20,000 LBS) SHALL BE OPERATED OVER THE R-TANK SYSTEM DURING CONSTRUCTION. **SPEC SECTION 3.05 A5**
3. DUMP TRUCKS AND PANS SHALL NOT BE OPERATED WITHIN THE R-TANK SYSTEM AT ANY TIME. WHERE NECESSARY, THE HEAVY EQUIPMENT SHOULD UNLOAD IN AN AREA ADJACENT TO THE R-TANK SYSTEM AND THE MATERIAL SHOULD BE MOVED OVER THE SYSTEM WITH TRACKED EQUIPMENT. **SPEC SECTION 3.05 A5**
4. ENSURE THAT ALL UNRELATED CONSTRUCTION TRAFFIC IS KEPT AWAY FROM THE LIMITS OF EXCAVATION UNTIL THE PROJECT IS COMPLETE AND FINAL SURFACE MATERIALS ARE IN PLACE. NO NON-INSTALLATION RELATED LOADING SHOULD BE ALLOWED OVER THE R-TANK SYSTEM UNTIL THE FINAL DESIGN SECTION HAS BEEN CONSTRUCTED (INCLUDING PAVEMENT). **SPEC SECTION 3.05 B**
5. SEE R-TANK INSTALLATION GUIDE OR CONTACT YOUR LOCAL ACF WEST REPRESENTATIVE FOR ADDITIONAL INFORMATION.



CONSTRUCTION EQUIPMENT COVER DETAIL - VEHICULAR TRAFFIC

R-TANK^HD CONSTRUCTION EQUIPMENT COVER DETAIL
EAST TOWN CROSSING
PUYALLUP, WA
SITE DESIGNATION: R-TANK 3

R-TANK HD
ENGINEER OF RECORD TO REVIEW, APPROVE AND ENDORSE FINAL SITE SPECIFIC DESIGN.
ACF WEST INC. GEOSYNTHETICS — Products | Service | Solutions
FOR ADDITIONAL INFORMATION PLEASE CONTACT ACF WEST: 1-800-423-4567, www.acfwest.com

DRAWN BY: EDQ
DATE: 02/20/2024
ACF WEST PROJECT NUMBER: 23-004WA
SHEET NO. 5 of 6

R-TANK SPECIFICATION

PART 1 - GENERAL

1.01 RELATED DOCUMENTS
- A. Drawings, technical specification and general provisions of the Contract as modified herein apply to this section.

1.02 DESCRIPTION OF WORK INCLUDED
- A. Provide excavation and base preparation per geotechnical engineer's recommendations and/or as shown on the design drawings, to provide adequate support for project design loads and safety from excavation sidewall collapse. Excavations shall be in accordance with the owner's and OSHA requirements.
- B. Provide and install R-TankLD/, R-TankHD/, R-TankSD/, or R-TankU/D/ system (hereafter called R-Tank) and all related products including fill materials, geotextiles, geogrids, inlet and outlet pipe with connections per the manufacturer's installation guidelines provided in this section.
- C. Provide and construct the cover of the R-Tank system including; stone backfill, structural fill cover, and pavement section as specified.
- D. Protect R-Tank system from construction traffic after installation until completion of all construction activity in the installation area.

1.03 QUALITY CONTROL
- A. All materials shall be manufactured in ISO certified facilities.
- B. Installation Contractor shall demonstrate the following experience:
  1. A minimum of three R-Tank or equivalent projects completed within 2 years; and,
  2. A minimum of 25,000 cubic feet of storage volume completed within 2 years.
  3. Contractor experience requirement may be waived if the manufacturer's representative provides on-site training and review during construction.
- C. Installation Personnel: Performed only by skilled workers with satisfactory record of performance on bulk earthworks, pipe, chamber, or pond/landfill construction projects of comparable size and quality.
- D. Contractor must have manufacturer's representative available for site review if requested by Owner.

1.04 SUBMITTALS
- A. Submit proposed R-Tank layout drawings. Drawings shall include typical section details as well as the required base elevation of stone and tanks, minimum cover requirements and tank configuration.
- B. Submit manufacturer's product data, including compressive strength and unit weight.
- C. Submit manufacturer's installation instructions.
- D. Submit R-Tank sample for review. Reviewed and accepted samples will be returned to the Contractor.
- E. Submit material certificates for geotextile, geogrid, base course and backfill materials.
- F. Submit required experience and personnel requirements as specified in Section 1.03.
- G. Any proposed equal alternative product substitution to this specification must be submitted for review and approved prior to bid opening. Review package should include third party reviewed performance data that meets or exceeds criteria in Table 2.01 B.

1.05 DELIVERY, STORAGE, AND HANDLING
- A. Protect R-Tank and other materials from damage during delivery, and store UV sensitive materials under tarp to protect from sunlight when time from delivery to installation exceeds two weeks. Storage of materials should be on smooth surfaces, free from dirt, mud and debris.
- B. Handling is to be performed with equipment appropriate to the materials and site conditions, and may include hand, handcart, forklifts, extension lifts, etc.
- C. Cold weather:
  1. Care must be taken when handling plastics when air temperature is 40 degrees or below as plastic becomes brittle.
  2. Do not use frozen materials or materials mixed or coated with ice or frost.
  3. Do not build on frozen ground or wet, saturated or muddy subgrade.

1.06 PREINSTALLATION CONFERENCE.
- A. Prior to the start of the installation, a preinstallation conference shall occur with the representatives from the design team, the general contractor, the excavation contractor, the R-Tank installation contractor, and the manufacturer's representative.

1.07 PROJECT CONDITIONS
- A. Coordinate installation for the R-Tank system with other on-site activities to eliminate all non-installation related construction traffic over the completed R-Tank system. No loads heavier than the design loads shall be allowed over the system, and in no case shall loads higher than a standard AASHTO HS20 (or HS25, depending on design criteria) load be allowed on the system at any time.
- B. Protect adjacent work from damage during R-Tank system installation.
- C. All pre-treatment systems to remove debris and heavy sediments must be in place and functional prior to operation of the R-Tank system. Additional pretreatment measures may be needed if unit is operational during construction due to increased sediment loads.
- D. Contractor is responsible for any damage to the system during construction.

PART 2 - PRODUCTS

2.01 R-TANK UNITS
- A. R-Tank - Injection molded plastic tank plates assembled to form a 95% void modular structure of predesigned height (custom for each project).
- B. R-Tank units shall meet the following Physical & Chemical Characteristics:

PROPERTY	DESCRIPTION	R-Tank^LD VALUE	R-Tank^HD VALUE	R-Tank^SD VALUE	R-Tank^UD VALUE
Void Area	Volume available for water storage	95%	95%	95%	95%
Surface Void Area	Percentage of exterior available for infiltration	90%	90%	90%	90%
Vertical Compressive Strength	ASTM D 2412 / ASTM F 2418	30.0 psi	33.4 psi	42.9 psi	134.2 psi
Lateral Compressive Strength	ASTM D 2412 / ASTM F 2418	20.0 psi	22.4 psi	28.9 psi	N/A
HS-20 Minimum Cover	Cover required to support HS-20 loads	N/A	20"	18"	12" (STONE BACKFILL)
HS-25 Minimum Cover	Cover required to support HS-25 loads	N/A	24"	19"	15" (STONE BACKFILL)
Maximum Cover	Maximum allowable cover depth	3 feet	< 7 feet	< 10 feet	5 feet
Unit Weight	Weight of plastic per cubic foot of tank	3.29 lbs / cf	3.82 lbs/cf	3.96 lbs / cf	4.33 lbs / cf
Rib Thickness	Thickness of load-bearing members	0.18 inches	0.18 inches	0.18 inches	N/A
Service Temperature	Safe temperature range for use	-14 – 167° F	-14 – 167° F	-14 – 167° F	-14 – 167° F

- C. Supplier: ACF West 15540 Woodinville-Redmond Rd., Woodinville, Washington 98072, (425) 415-6115, www.acfwest.com

2.02 GEOSYNTHETICS
- A. Geotextile. A geotextile envelope is required to prevent backfill material from entering the R-Tank modules.
  1. Standard Application: The standard geotextile shall be an 8 oz per square yard nonwoven geotextile (TenCate Mirafi 180N or equivalent).
  2. Infiltration Applications: When water must infiltrate/exfiltrate through the geotextile as a function of the system design, a woven monofilament (TenCate Mirafi FW402 or equivalent) shall be used.
- B. Geogrid. For installations subject to traffic loads and/or when required by project plans, install geogrid (Naue Secugrid 30/30 or equivalent) to reinforce backfill above the R-Tank system. Geogrid is not always required for R-TankUD/ installations, and is often not required for non-traffic load applications.
- C. MANUFACTURED 30 MIL. (MIN) IMPERMEABLE LINER TO PREVENT GROUNDWATER INTRUSION.

2.03 BACKFILL & COVER MATERIALS
- A. Bedding Materials: Stone (angular and smaller than 1.5" in diameter) or soil (GW, GP, SW, or SP as classified by the Unified Soil Classification System) shall be used below the R-Tank system (3" minimum). Material must be free from lumps, debris, and any sharp objects that could cut the geotextile. Material shall be within 3 percent of the optimum moisture content as determined by ASTM D698 at the time of installation. For infiltration applications bedding material shall be free draining.
- B. Side and Top Backfill: Material must be free from lumps, debris and any sharp objects that could cut the geotextile. Material shall be within 3 percent of the optimum moisture content as determined by ASTM D698 at the time of installation.
  1. Traffic Applications - Free draining material shall be used adjacent to (24" minimum) and above (for the first 12") the R-Tank system.
  - a. For HD, and SD modules, backfill materials shall be free draining stone (angular and smaller than 1.5" in diameter) or soil (GW, GP, SW, or SP as classified by the Unified Soil Classification System).
  - b. For UD modules with less than 14" of top cover, backfill materials shall be free draining stone (angular and smaller than 1.5" in diameter). The use of soil backfill on the sides and top of the UD module is not permitted unless the modules are installed outside of traffic areas or with cover depths of 14" or more. Top backfill material (from top of module to bottom of pavement base or 12" maximum) must be consistent with side backfill.
  2. Non-Traffic / Green Space Applications - For all R-Tank modules installed in green spaces and not subjected to vehicular loads, backfill materials may either follow the guidelines for Traffic Applications above, or the top backfill layer (12" minimum) may consist of AASHTO #57 stone blended with 30-40% (by volume) topsoil to aid in establishing vegetation.
- C. Additional Cover Materials: Structural Fill shall consist of granular materials meeting the gradational requirements of SM, SP, SW, GM, GP or GW as classified by the Unified Soil Classification System. Structural fill shall have a maximum of 25 percent passing the No. 200 sieve, shall have a maximum clay content of 10 percent and a maximum Plasticity Index of 4. Material shall be within 3 percent of the optimum moisture content as determined by ASTM D698 at the time of installation.

2.04 OTHER MATERIALS
- A. Utility Marker: Install metallic tape at corners of R-Tank system to mark the area for future utility detection.

PART 3 - EXECUTION

3.01 ASSEMBLY OF R-TANK UNITS
- A. Assembly of modules shall be performed in accordance with the R-Tank Installation Manual, Section 2.

3.02 LAYOUT AND EXCAVATION
- A. Installer shall stake out, excavate, and prepare the subgrade area to the required plan grades and dimensions, ensuring that the excavation is at least 2 feet greater than R-Tank dimensions in each direction allowing for installation of geotextile filter fabric, R-Tank modules, and free draining backfill materials.
- B. All excavations must be prepared with OSHA approved excavated sides and sufficient working space.
- C. Protect partially completed installation against damage from other construction traffic by establishing a perimeter with high visibility construction tape, fencing, barricades, or other means until construction is complete.
- D. Base of the excavation shall be uniform, level, and free of lumps or debris and soft or yielding subgrade areas. A minimum 2,000 pounds per square foot bearing capacity is required.
  1. Standard Applications: Compact subgrade to a minimum of 95% of Standard Proctor (ASTM D698) density or as required by the Owner's engineer.
  2. Infiltration Applications: Subgrade shall be prepared in accordance with the contract documents. Compaction of subgrade should not be performed in infiltration applications.
- E. Unsuitable Soils or Conditions: All questions about the base of the excavation shall be directed to the owner's engineer, who will approve the subgrade conditions prior to placement of stone. The owner's engineer shall determine the required bearing capacity of the R-Tank subgrade; however in no case shall a bearing capacity of less than 2,000 pounds per square foot be provided.
  1. If unsuitable soils are encountered at the subgrade, or if the subgrade is pumping or appears excessively soft, repair the area in accordance with contract documents and/or as directed by the owner's engineer.
  2. If indications of the water table are observed during excavation, the engineer shall be contacted to provide recommendations.
  3. Do not start installation of the R-Tank system until unsatisfactory subgrade conditions are corrected and the subgrade conditions are accepted by the owner's engineer.

3.03 PREPARATION OF BASE
- A. Place a thin layer (3" unless otherwise specified) of bedding material (Section 2.03 A), over the subgrade to establish a level working platform for the R-Tank modules. Level to within ½" (+/- ¼") or as shown on the plans. Native subgrade soils or other materials may be used if determined to meet the requirements of 2.03 A and are accepted by the owner's engineer.
  1. Standard Applications: Static roll or otherwise compact bedding materials until they are firm and unyielding.
  2. Infiltration Applications: Bedding materials shall be prepared in accordance with the contract documents.
- B. Outline the footprint of the R-Tank system on the excavation floor using spray paint or chalk line to ensure a 2' perimeter is available around the R-Tank system for proper installation and compaction of backfill.

3.04 INSTALLATION OF THE R-TANKS
- A. Where a geotextile wrap is specified on the stone base, cut strips to length and install in excavation, removing wrinkles so material lays flat. Overlap geotextile a minimum 12" or as recommended by manufacturer. Use tape, special adhesives, sandbags or other ballast to secure overlaps. As geotextiles can be damaged by extreme heat, smoking is not permissible on/near the geotextile, and tools using a flame to tack the overlaps, such as propane torches, are prohibited.
- B. Where an impervious liner (for containment) is specified, install the liner per manufacturer's recommendations and the contract documents. The R-Tank units shall be separated from impervious liner by a non-woven geotextile fabric installed accordance with Section 3.04A.
- C. Install R-Tank modules by placing side by side, in accordance with the design drawings. No lateral connections are required. It is advisable to use a string line to form square corners and straight edges along the perimeter of the R-Tank system. The modules are to be oriented as per the design drawing with required depth as shown on plans.
  1. For LD, HD, and SD installations, the large side plate of the tank should be placed on the perimeter of the system. This will typically require that the two ends of the tank area will have a row of tanks placed perpendicular to all other tanks. If this is not shown in the construction drawings, it is a simple field adjustment that will have minimal effect on the overall system footprint. Refer to R-Tank Installation Guide for more details
  2. For UD installations, there is no perpendicular end row required.
- D. Wrap the R-Tank top and sides in specified geotextile. Cut strips of geotextile so that it will cover the sides and top, encapsulating the entire system to prevent backfill entry into the system. Overlap geotextile 12" or as recommended by manufacturer. Take great care to avoid damage to geotextile (and, if specified, impervious liner) during placement.
- E. Identify locations of inlet, outlet and any other penetrations of the geotextile (and optional liner). These connections should be installed flush (butted up to the R-Tank) and the geotextile fabric shall be cut to enable hydraulic continuity between the connections and the R-Tank units. These connections shall be secured using pipe boots with stainless steel pipe clamps. Support pipe in trenches during backfill operations to prevent pipe from settling and damaging the geotextile, impervious liner (if specified) or pipe. Connecting pipes at 90 degree angles facilitates construction, unless otherwise specified. Ensure end of pipe is installed snug against R-Tank system.
- F. Install Inspection and Maintenance Ports in locations noted on plans. At a minimum one maintenance port shall be installed within 10' of each inlet & outlet connection, and with a maximum spacing of one maintenance port for every 2,500 square feet. Install all ports as noted in the R-Tank Installation Guide.
- G. If required, install ventilation pipes and vents as specified on drawings to provide ventilation for proper hydraulic performance. The number of pipes and vents will depend on the size of the system. Vents are often installed using a 90 degree elbow with PVC pipe into a landscaped area with "U" bend or venting bollard to inhibit the ingress of debris. A ground level concrete or steel cover can be used.

3.05 BACKFILLING OF THE R-TANK UNITS
- A. Backfill and fill with recommended materials as follows:
  1. Place freely draining backfill materials (Section 2.03 B) around the perimeter in lifts with a maximum thickness of 12". Each lift shall be placed around the entire perimeter such that each lift is no more than 24" higher than the side backfill along any other location on the perimeter of the R-Tank system. No fill shall be placed over top of tanks until the side backfill has been completed.
  2. Each lift shall be compacted at the specified moisture content to a minimum of 95% of the Standard Proctor Density until no further densification is observed (for self-compacting stone materials). The side lifts must be compacted with walk behind compaction equipment. Even when "self-compacting" backfill materials are selected, a walk behind vibratory compactor must be used.
  3. Take care to ensure that the compaction process does not allow the machinery to come into contact with the modules due to the potential for damage to the geotextile and R-Tank units.
  4. No compaction equipment is permissible to operate directly on the R-Tank modules.
  5. Top Backfill: Only low pressure track vehicles shall be operated over the R-Tank system during construction. Dump Trucks and Pans shall not be operated within the R-Tank system footprint at any time. Heavy equipment should unload in an area adjacent to the R-Tank system and the material should be moved over the system using tracked equipment with an operating weight of less than 10 tons.
     - a. Typical Applications: Install a 12" (or as shown on plans) lift of freely draining material (Section 2.03 B) over the R-Tank Units, maintaining 12" between equipment tracks and R-Tank System. Lightly compacted using a walk-behind trench roller. Alternately, a roller (maximum gross vehicle weight of 6 tons) may be used. Roller must remain in static mode until a minimum of 24" of cover has been placed over the modules. Sheep foot rollers should not be used.
     - b. Shallow Applications (< 18" total cover): Install top backfill in accordance with plans.
  6. If required, install a geogrid as shown on plans. Geogrid shall extend a minimum of 3 feet beyond the limits of the excavation wall.
  7. Following placement and compaction of the initial cover, subsequent lifts of structural fill (Section 2.03 C) shall be placed at the specified moisture content and compacted to a minimum of 95% of the Standard Proctor Density and shall cover the entire footprint of the R-Tank system. During placement of fill above the system, unless otherwise specified, a uniform elevation of fill shall be maintained to within 12" across the footprint of the R-Tank system. Do not exceed maximum cover depths listed in Table 2.01 B.
  8. Place additional layers of geotextile and/or geogrid at elevations as specified in the design details. Each layer of geosynthetic reinforcement placed above the R-Tank system shall extend a minimum of 3 feet beyond the limits of the excavation wall.
- B. Ensure that all unrelated construction traffic is kept away from the limits of excavation until the project is complete and final surface materials are in place. No non-installation related loading should be allowed over the R-Tank system until the final design section has been constructed (including pavement).
- C. Place surfacing materials, such as groundcovers (no large trees), or paving materials over the structure with care to avoid displacement of cover fill and damage to surrounding areas.
- D. Backfill depth over R-Tank system must be within the limitations shown in the table in Section 2.01 B. If the total backfill depth does not comply with this table, contact engineer or manufacturer's representative for assistance.

3.06 MAINTENANCE REQUIREMENTS
- A. A routine maintenance effort is required to ensure proper performance of the R-Tank system. The Maintenance program should be focused on pretreatment systems. Ensuring these structures are clean and functioning properly will reduce the risk of contamination of the R-Tank system and stormwater released from the site. Pre-treatment systems shall be inspected yearly, or as directed by the regulatory agency and by the manufacturer (for proprietary systems). Maintain as needed using acceptable practices or following manufacturer's guidelines (for proprietary systems).
- B. All inlet pipes and Inspection and/or Maintenance Ports in the R-Tank system will need to be inspected for accumulation of sediments at least quarterly through the first year of operation and at least yearly thereafter.
- C. If sediment has accumulated to the level noted in the R-Tank Maintenance Guide or beyond a level acceptable to the Owner's engineer, the R-Tank system should be flushed.
- D. All inspection and maintenance activities should be performed in accordance with the R-Tank Operation, Inspection & Maintenance Manual.

R-TANK SPECIFICATION
EAST TOWN CROSSING
PUYALLUP, WA
SITE DESIGNATION: R-TANK 3

DRAWN BY: EDQ
DATE: 02/20/2024
ACF WEST PROJECT NUMBER: 23-004WA
SHEET NO. 6 of 6

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CITY OF PUYALLUP
DEVELOPMENT ENGINEERING

DATE ______________________

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Project Title:
EAST TOWN CROSSING PHASE 1

Client:
ASH DEVELOPMENT

GREG HELLE

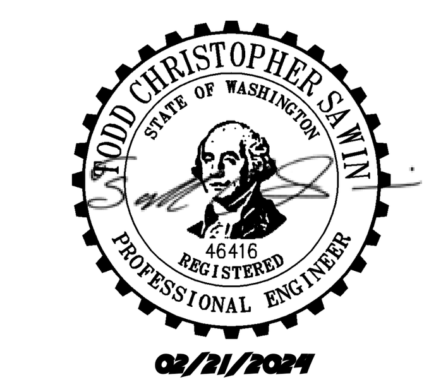
GREG.HELLE@ASHNW.COM

Project No.
2230752

Issue Set & Date:

PERMIT SUBMITTAL

02/20/2024



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R-TANK 3 NOTES AND DETAILS

Designed by:	Drawn by:	Checked by:
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Sheet No.
C4.32

EAST TOWN CROSSING PHASE 1

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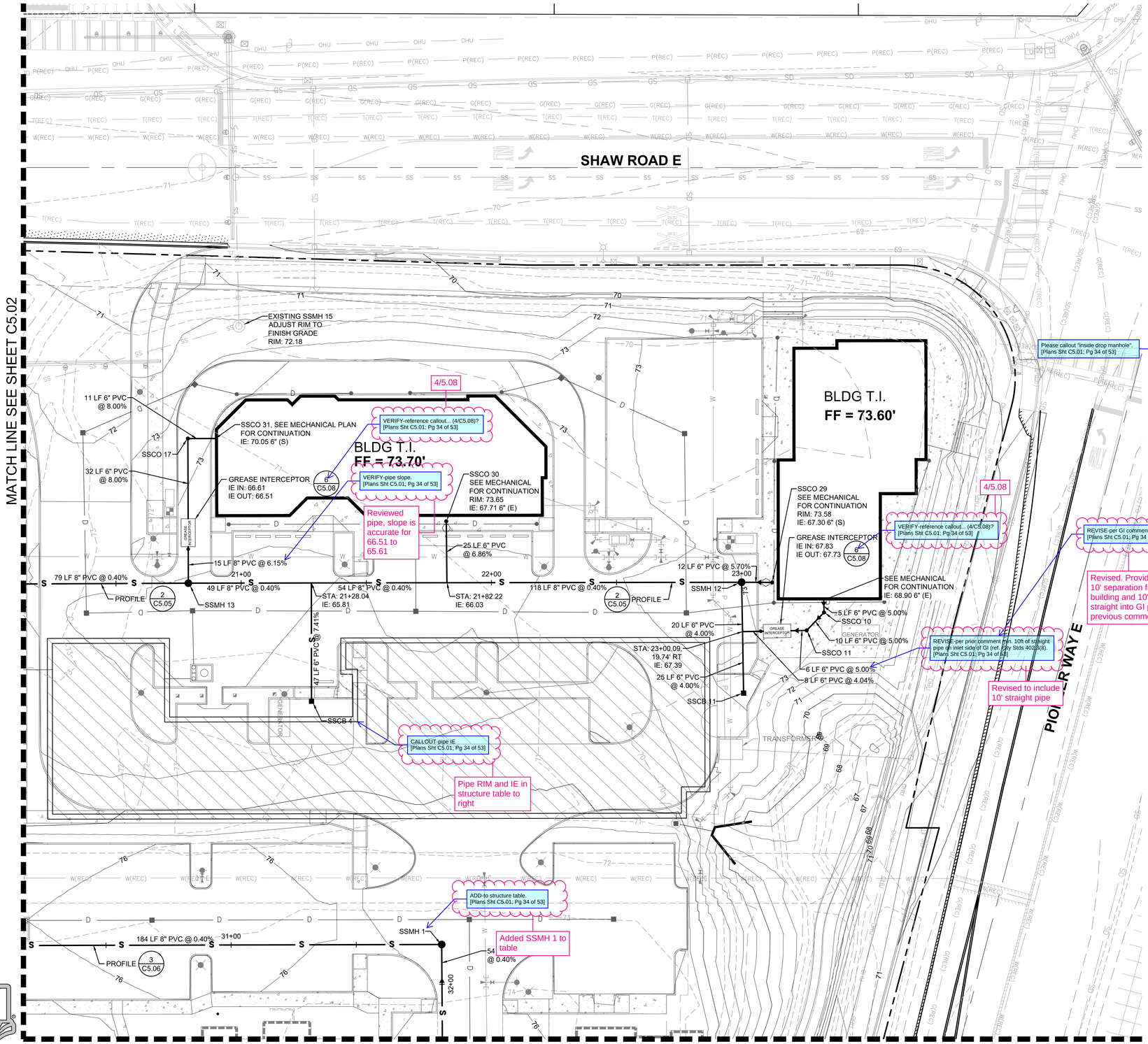

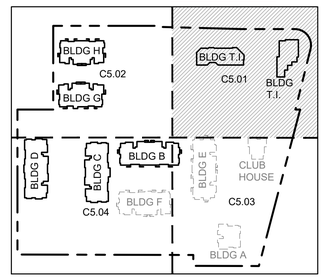

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N

GRAPHIC SCALE
0 10 20 40
1" = 20 FEET

LEGEND

- RIGHT-OF-WAY / PROPERTY LINE
- CENTERLINE
- EASEMENT
- BUILDING OUTLINE
- SANITARY SIDE SEWER
- SANITARY SEWER MAIN
- SANITARY SEWER FORCE MAIN
- SANITARY SEWER CLEANOUT (2 C5.08)
- SAMPLING CONNECTION (1 C5.08)
- SANITARY SEWER MANHOLE (3 C5.08)
- PROPOSED MINOR CONTOUR
- PROPOSED MAJOR CONTOUR

SEWER STRUCTURE TABLE

STRUCTURE NAME	STRUCTURE DETAILS
EXISTING SSMH 15 ADJUST RIM TO FINISH GRADE N 679922.81 E 1203825.42	RIM = 72.18 IE = 50.82 (8" W) IE = 62.37 (8" S)
SSCB 4 TYPE 1 CB N 679948.91 E 1203975.91	RIM = 73.25 IE = 69.31 (6" W)
SSCB 11 TYPE 1 CB N 680121.57 E 1203976.02	RIM = 72.92 IE = 68.37 (6" W)
SSCO 10 N 680154.32 E 1203944.40	RIM = 73.56 IE = 68.65 (6" SE) IE = 68.65 (6" W)
SSCO 11 SSCO N 680147.26 E 1203951.45	RIM = 73.55 IE = 68.15 (6" S) IE = 68.15 (6" NW)
SSCO 17 N 679901.55 E 1203869.97	RIM = 72.81 IE = 69.17 (6" E) IE = 69.17 (6" N)
SSMH 12 48" SSMH N 680121.64 E 1203931.70	RIM = 72.99 IE = 66.50 (8" S) IE = 66.60 (6" E) IE = 66.60 (6" N)
SSMH 13 48" SSMH N 679900.63 E 1203927.77	RIM = 72.87 IE = 65.51 (8" S) IE = 65.61 (8" N) IE = 65.61 (8" W)

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Project Title:

EAST TOWN CROSSING PHASE 1

Client:
ASH DEVELOPMENT
GREG HELLE
GREG.HELLE@ASHNW.COM

Project No.
2230752

Issue Set & Date:
PERMIT SUBMITTAL
02/20/2024

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EAST TOWN CROSSING PHASE 1
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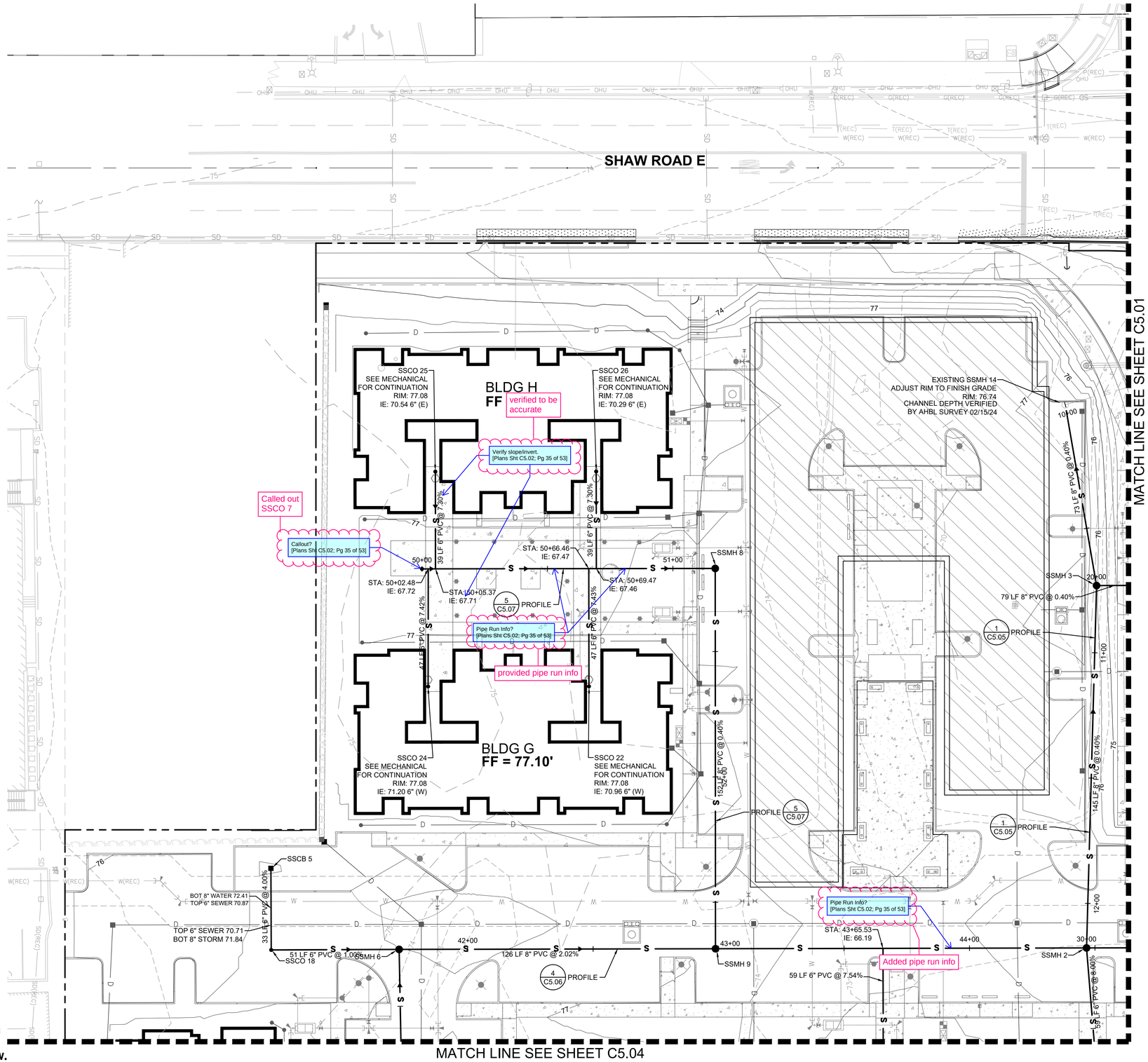

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GRAPHIC SCALE
0 10 20 40
1" = 20 FEET

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LEGEND

- RIGHT-OF-WAY / PROPERTY LINE
- CENTERLINE
- EASEMENT
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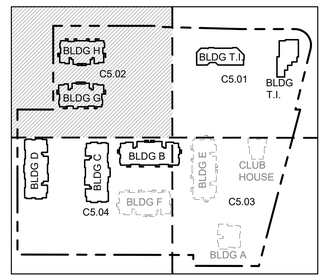
- S — SANITARY SIDE SEWER
- S — SANITARY SEWER MAIN
- FM — SANITARY SEWER FORCE MAIN
- SANITARY SEWER CLEANOUT (2 C5.08)
- SAMPLING CONNECTION (1 C5.08)
- SANITARY SEWER MANHOLE (3 C5.08)
- 123 — PROPOSED MINOR CONTOUR
- 123 — PROPOSED MAJOR CONTOUR

SEWER STRUCTURE TABLE

STRUCTURE NAME	STRUCTURE DETAILS
EXISTING SSMH 14 ADJUST RIM TO FINISH GRADE N 679810.64 E 1203854.27	RIM = 76.74 IE = 64.46 (8" N) IE = 64.80 (8" E)
SSCB 5 TYPE 1 CB N 679490.51 E 1204032.97	RIM = 75.95 IE = 71.01 (6" E)
SSCO 7 N 679553.05 E 1203914.74	RIM = 76.68 IE = 67.73 (8" N)
SSCO 18 N 679490.00 E 1204065.50	RIM = 76.18 IE = 69.71 (6" N) IE = 69.71 (6" W)
SSMH 2 48" TYPE 1 N 679814.92 E 1204071.02	RIM = 76.46 IE = 65.77 (8" W) IE = 65.87 (8" N) IE = 65.87 (8" S) IE = 65.87 (6" E)
SSMH 3 48" TYPE 1 N 679821.72 E 1203926.62	RIM = 76.14 IE = 65.09 (8" W) IE = 65.19 (8" E) IE = 65.19 (8" N)
SSMH 6 48" SSMH N 679540.98 E 1204066.28	RIM = 76.03 IE = 69.10 (8" N) IE = 69.20 (8" E) IE = 69.20 (6" S)
SSMH 8 48" TYPE 1 N 679669.89 E 1203916.83	RIM = 77.24 IE = 67.17 (8" E) IE = 67.27 (8" S)
SSMH 9 48" TYPE 1 N 679667.05 E 1204068.46	RIM = 76.63 IE = 66.46 (8" N) IE = 66.56 (8" S) IE = 66.56 (8" W)



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Project Title:

EAST TOWN CROSSING PHASE 1

Client:

ASH DEVELOPMENT

GREG HELLE

GREG.HELLE@ASHNW.COM

Project No.

2230752

Issue Set & Date:

PERMIT SUBMITTAL

02/20/2024

TODD CHRISTOPHER SHANT — STATE OF WASHINGTON — 46416 — REGISTERED PROFESSIONAL ENGINEER
02/21/2024

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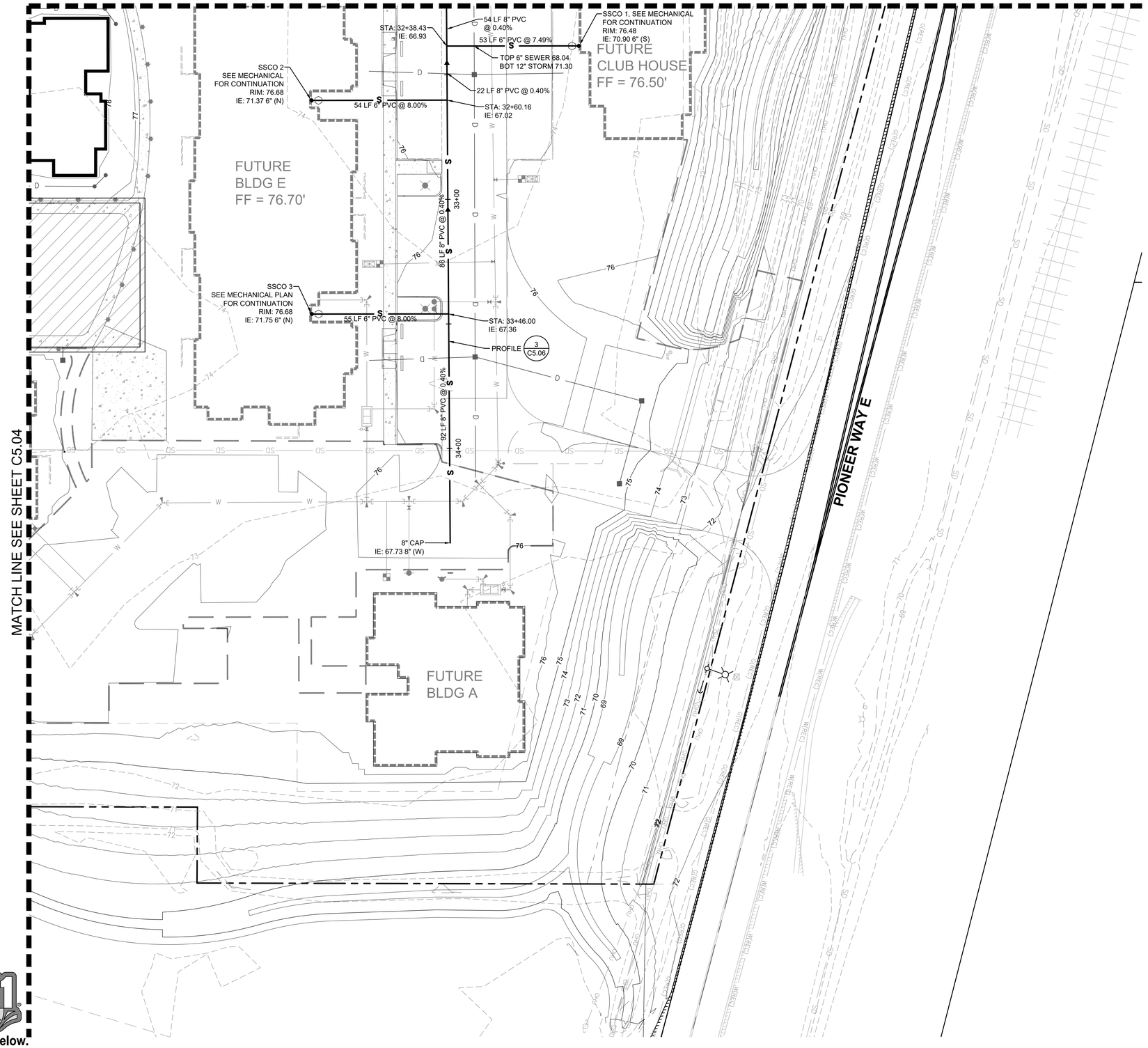

GRAPHIC SCALE

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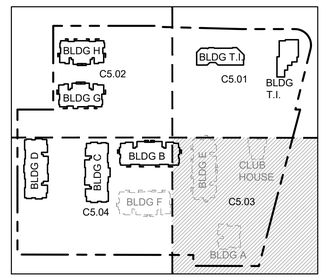

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DEVELOPMENT ENGINEERING

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STATE OF WASHINGTON
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EAST TOWN CROSSING PHASE 1

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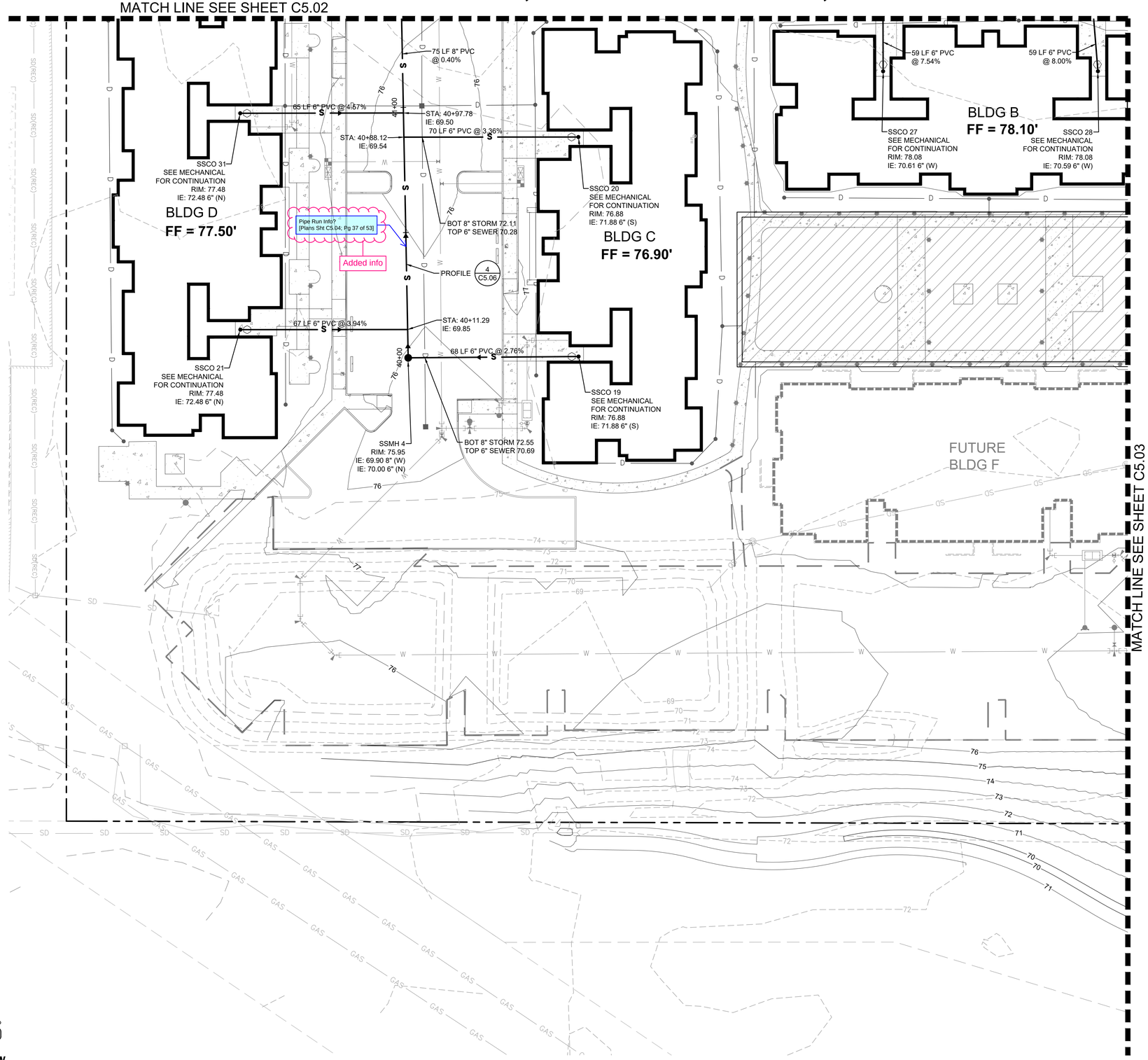

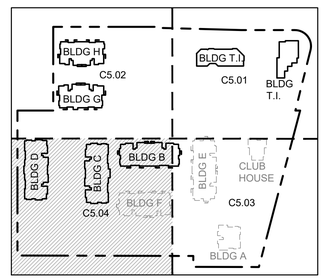

GRAPHIC SCALE

0 10 20 40

1" = 20 FEET

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- BUILDING OUTLINE
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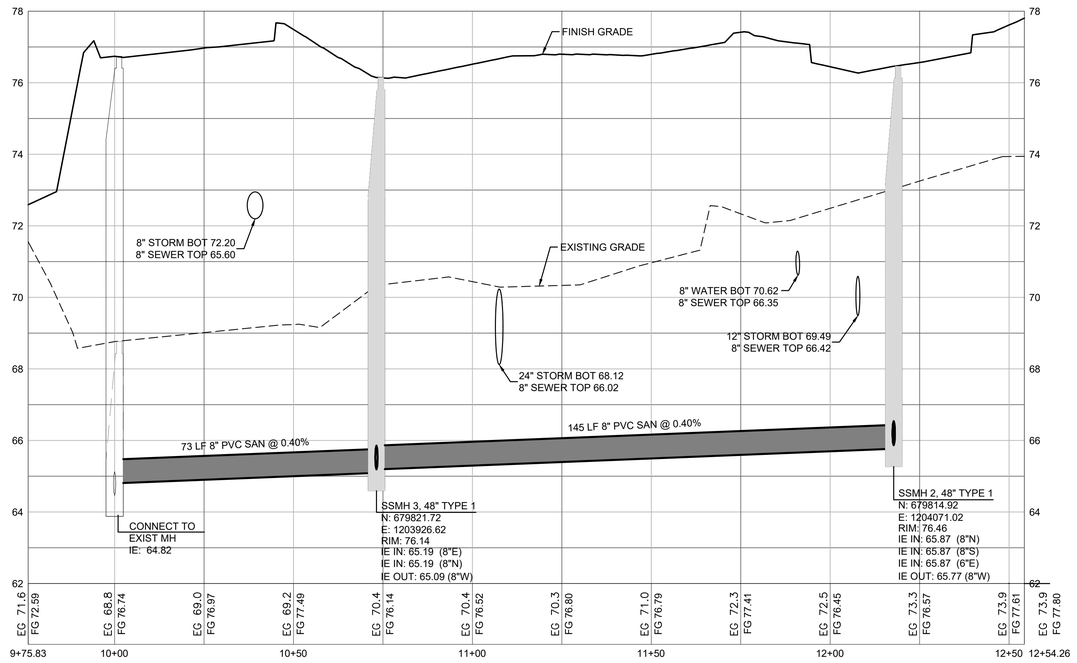
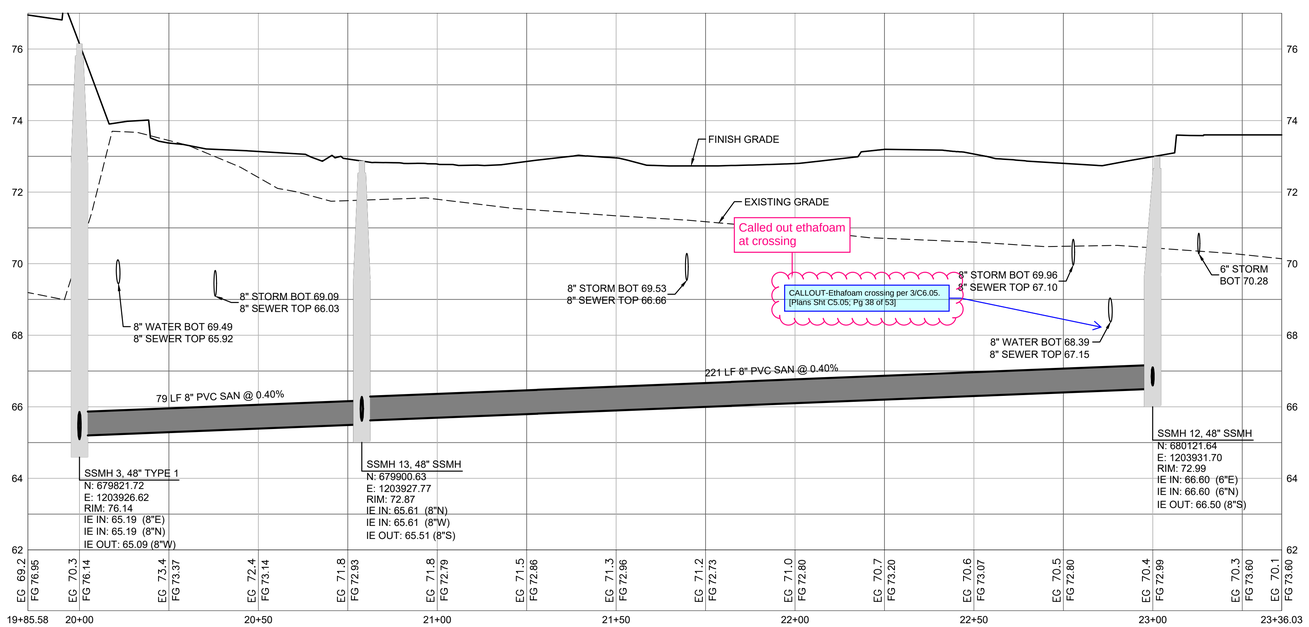


1 **SEWER PROFILE**
SCALE: HORIZ 1"=20'; VERT 1"=2'



2 **SEWER PROFILE**
SCALE: HORIZ 1"=20'; VERT 1"=2'

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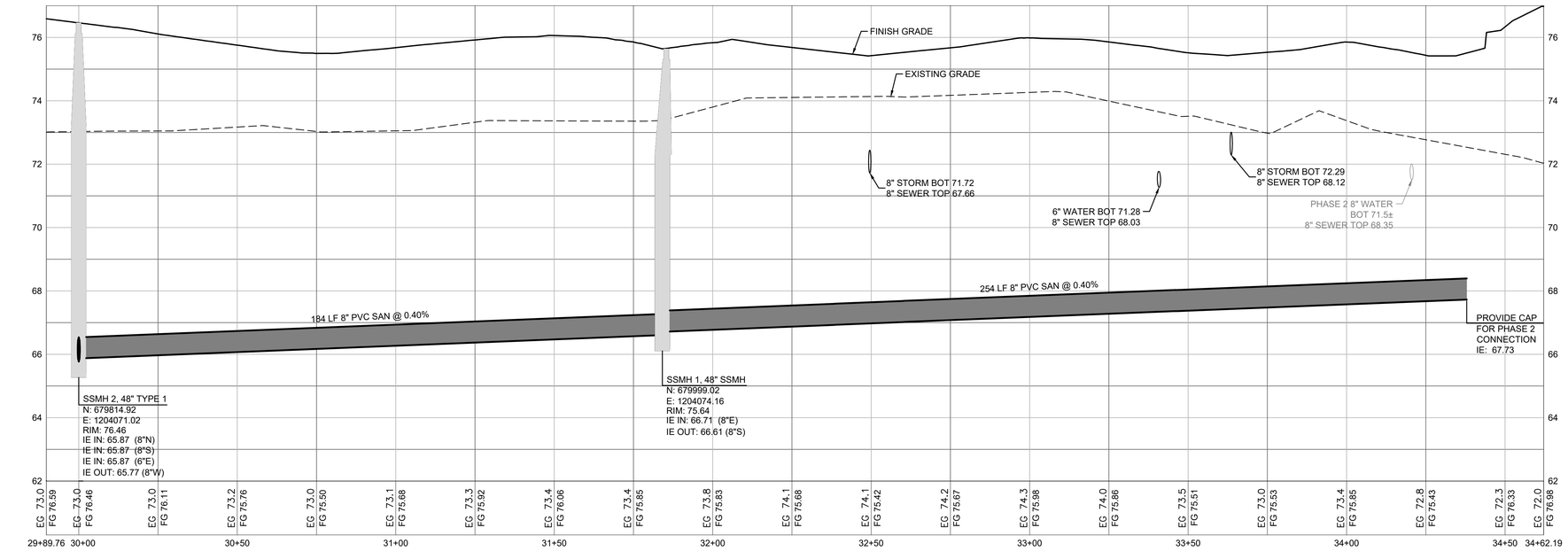
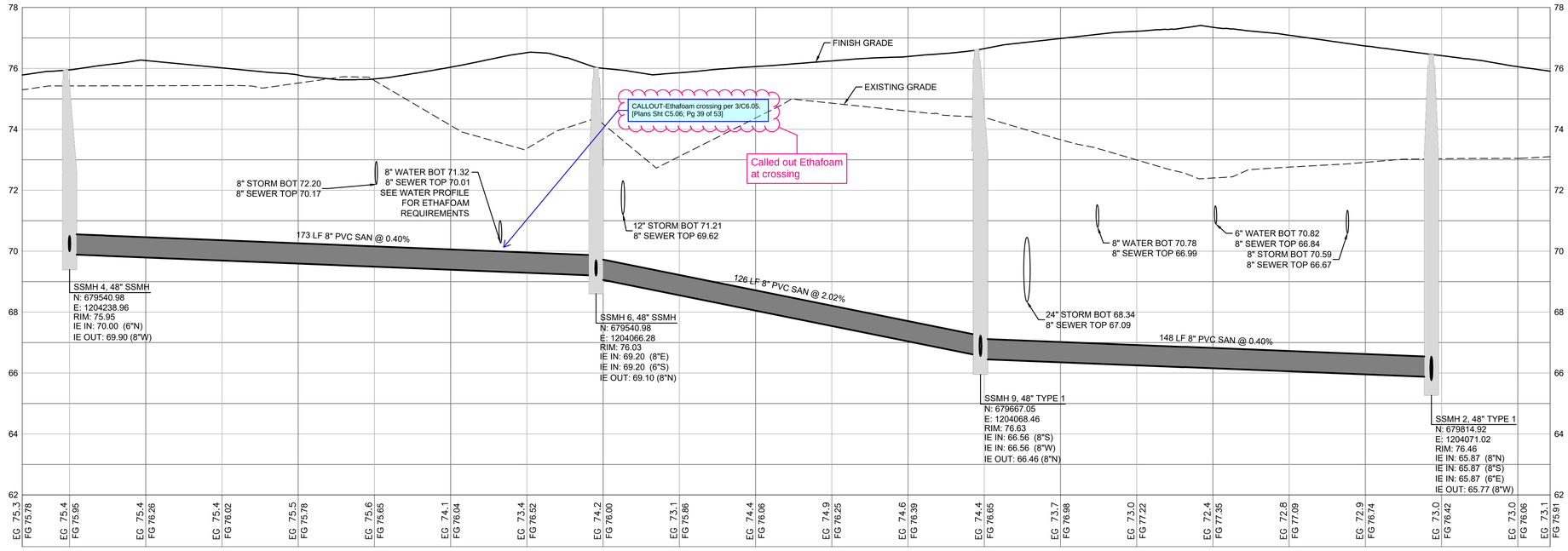


3 **SEWER PROFILE**
SCALE: HORIZ 1"=20'; VERT 1"=2'



4 **SEWER PROFILE**
SCALE: HORIZ 1"=20'; VERT 1"=2'

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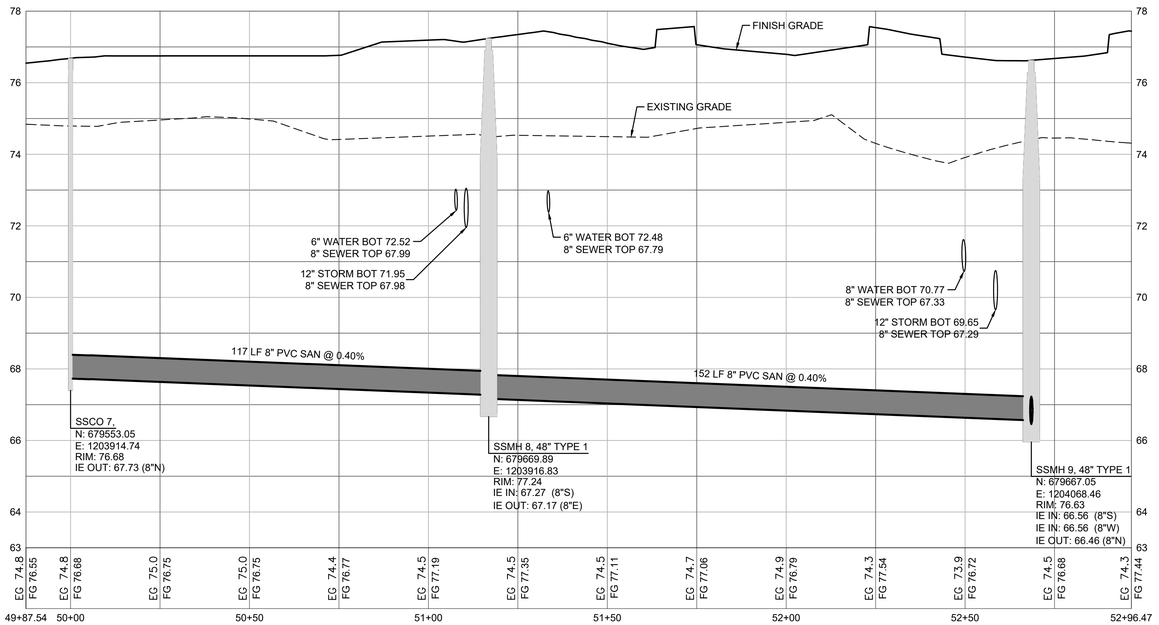

5 **SEWER PROFILE**
SCALE: HORIZ 1"=20'; VERT 1"=2'

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- 3
- 2
- 1 01/29/24 CITY COMMENTS

Sheet Title:

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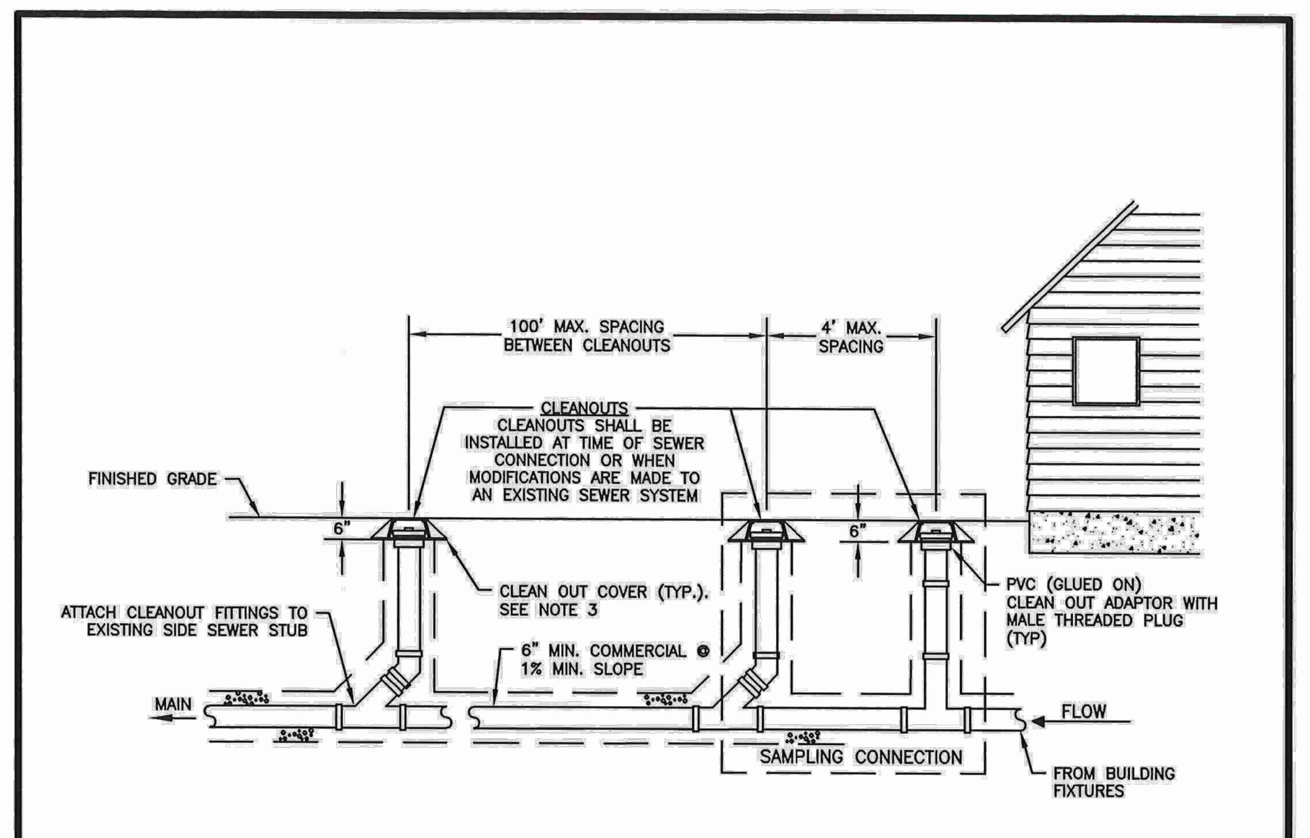
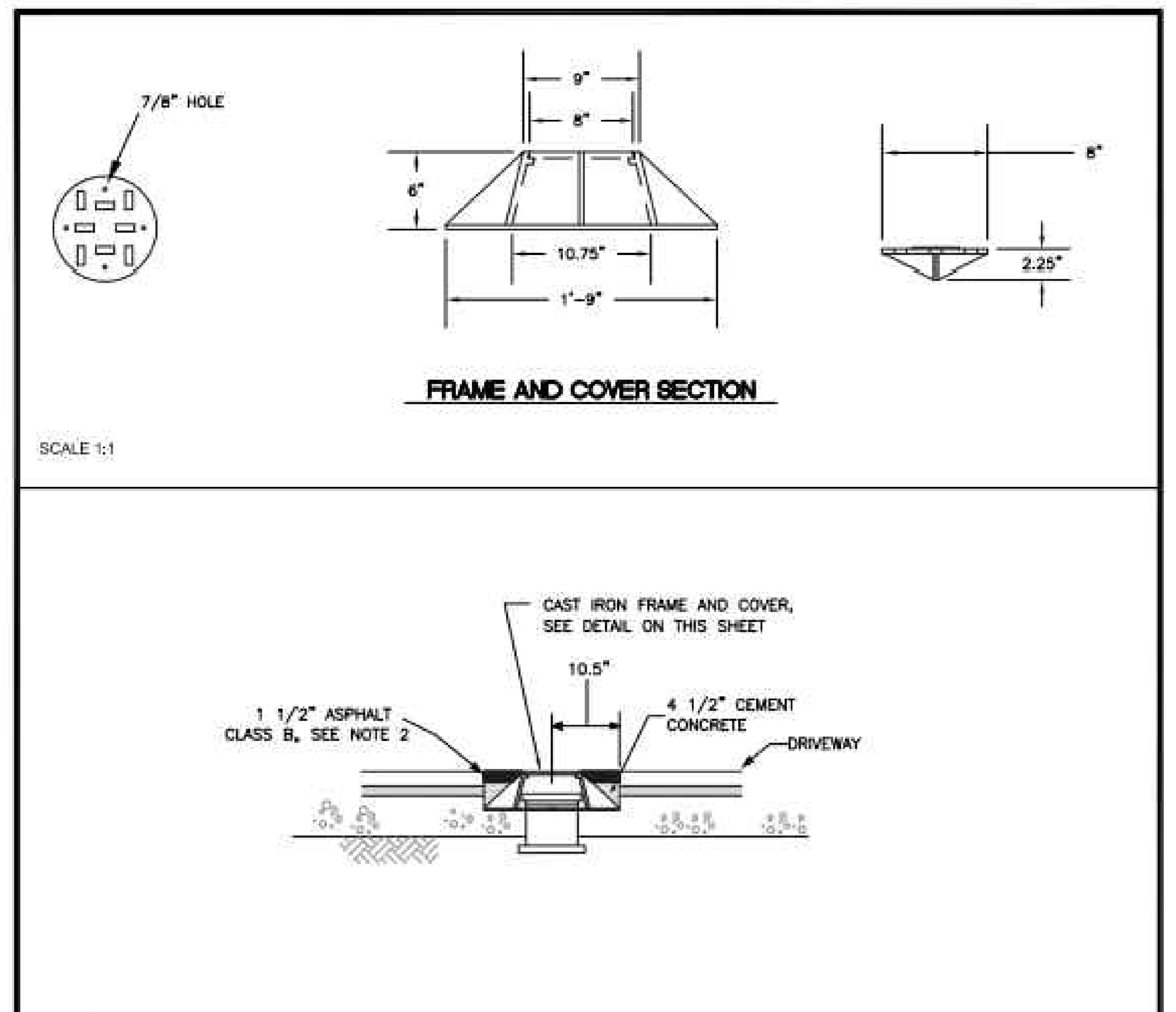


NOTES:

1. SAMPLING CONNECTION SHALL BE INSTALLED OUTSIDE WITH UNOBSTRUCTED ACCESS AT ALL TIMES.
2. SAMPLING CONNECTION SHALL BE INSTALLED FOR EACH COMMERCIAL / RETAIL UNIT OR SPACE.
3. CLEAN OUT AND SAMPLING CONNECTION COVERS:
   A) FOR NON–VEHICULAR TRAFFIC INSTALLATIONS USE "CARSON" MODEL 910 GREEN YARD BOX WITH BOLT DOWN LID MARKED SEWER OR APPROVED EQUAL.
   B) FOR ASPHALT, GRAVEL, OR TRAFFIC INSTALLATIONS, SEE CITY STANDARD DETAIL NO. 04.03.05 FOR FRAME AND COVER SECTION.
4. EACH CLEANOUT ASSEMBLY SHALL CONSIST OF: ONE CLEANOUT ADAPTER, HUB x FEMALE, FIPT, PVC SI AND ONE CLEANOUT PLUG, MOPT WITH RAISED NUT, PVC SDR35.

CITY OF PUYALLUP — PUBLIC WORKS AND DEVELOPMENT ENGINEERING — COMMERCIAL SIDE SEWER CONNECTION WITH SAMPLING CONNECTION — (NOT TO SCALE) — CITY STANDARD 04.03.04

1 COMMERCIAL SIDE SEWER CONNECTION WITH SAMPLING CONNECTION
NOT TO SCALE



NOTES

1. NEAT LINE CUT SHALL BE SEALED AT THE TOP WITH A HOT PAVING GRADE ASPHALT AND FACE OF CUT TACKED.
2. ALL MATERIAL SHALL CONFORM TO THE 1991 STANDARD SPECIFICATIONS FOR ROAD, BRIDGE, AND MUNICIPAL CONSTRUCTION PREPARED BY THE WASHINGTON STATE DEPARTMENT OF TRANSPORTATION AND AMERICAN PUBLIC WORKS ASSOCIATION, WASHINGTON STATE CHAPTER.
3. MACHINE BEARING FACES OF FRAME AND COVER TO INSURE POSITIVE FIT.
4. EACH CLEAN OUT ASSEMBLY SHALL CONSIST OF: ONE CLEAN OUT ADAPTOR (HUB X FEMALE INSIDE PIPE THREAD, P.V.C. SLIP IN), AND ONE CLEAN OUT PLUG (MALE OUTSIDE PIPE THREAD WITH RAISED NUT, P.V.C. SDR35).

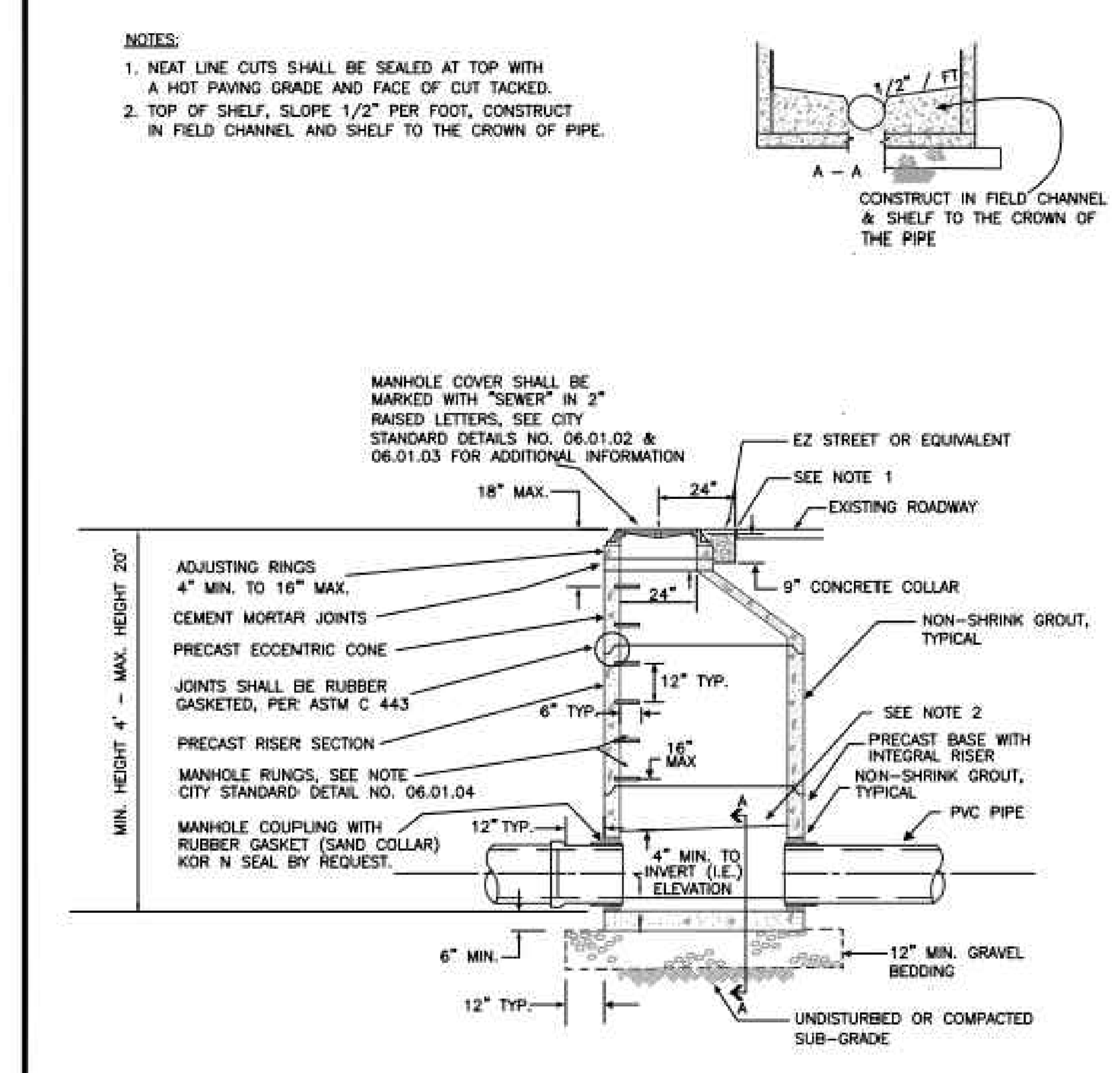
SCALE 1:2

CITY OF PUYALLUP — DEVELOPMENT ENGINEERING and PUBLIC WORKS DEPARTMENTS — SIDE SEWER CLEAN OUT WHEN PLACED IN DRIVEWAY — CITY STANDARD 04.03.05

2 SIDE SEWER CLEAN OUT WHEN PLACED IN DRIVEWAY
NOT TO SCALE

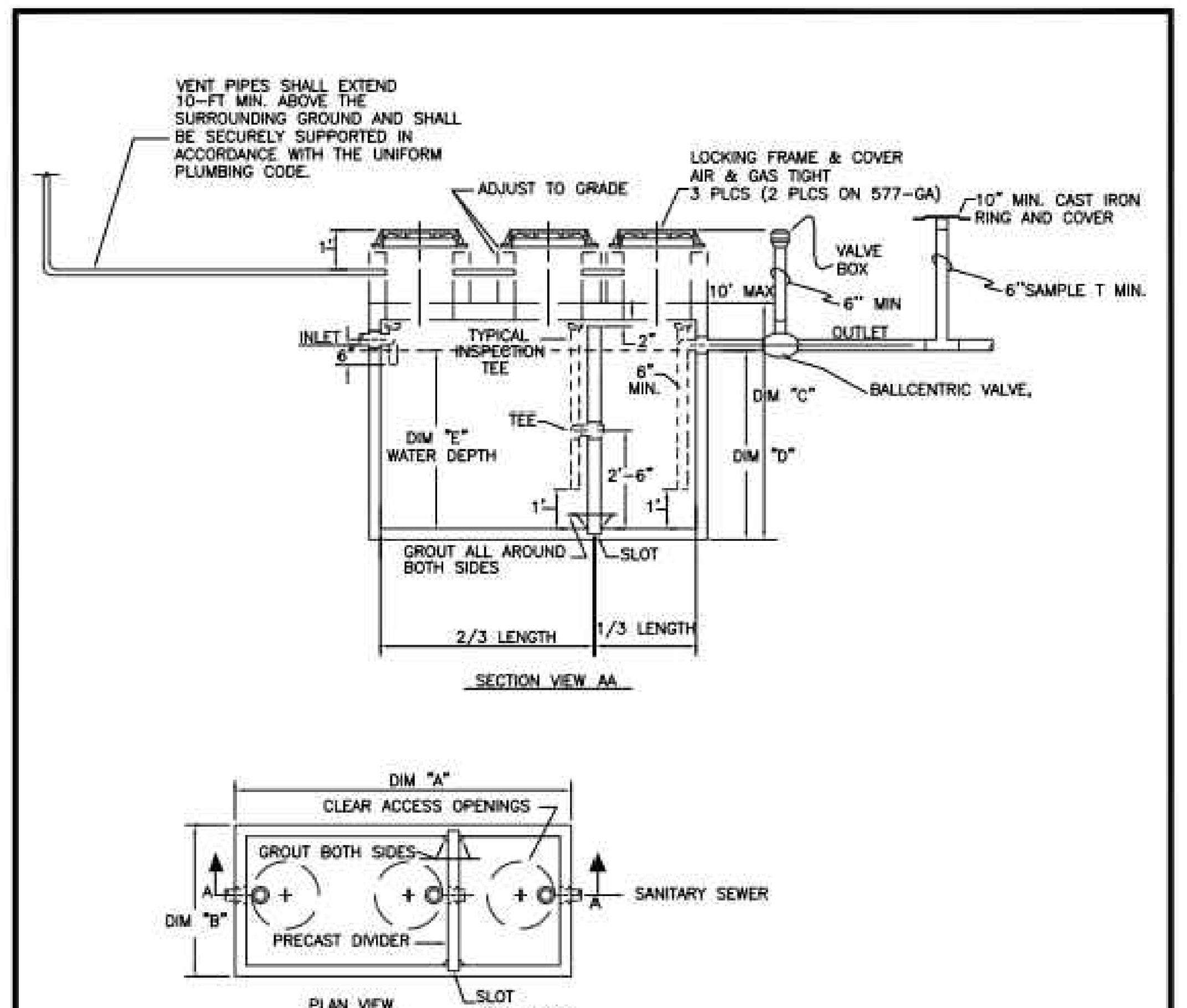
NOTES:

1. NEAT LINE CUTS SHALL BE SEALED AT TOP WITH A HOT PAVING GRADE AND FACE OF CUT TACKED.
2. TOP OF SHELF, SLOPE 1/2" PER FOOT, CONSTRUCT IN FIELD CHANNEL AND SHELF TO THE CROWN OF PIPE.



CITY OF PUYALLUP — DEVELOPMENT ENGINEERING and PUBLIC WORKS DEPARTMENTS — SANITARY SEWER MANHOLE — CITY STANDARD 04.01.01

3 SANITARY SEWER MANHOLE
NOT TO SCALE



	CAPACITY	DIM "A"	DIM "B"	DIM "C"	DIM "D"	WATER DEPTH DIM "E"
(Min. Size)	750	7'–0"	4'–8"	7'–0"	4'–3"	3'–11"
	1000	9'–0"	5'–0"	7'–2"	4'–2"	3'–10"
	1500	11'–2"	5'–8"	7'–2"	4'–3"	3'–11"
	2000	12'–8"	6'–8"	8'–0"	4'–7"	3'–10"
	2500	12'–8"	6'–8"	8'–0"	5'–6"	4'–9"
	3000	13'–1"	8'–0"	8'–7"	5'–1"	4'–8"
	4000	13'–1"	8'–0"	8'–7"	6'–8"	6'–3"
	5000	15'–7"	9'–7"	10'–0"	7'–4"	6'–1"
	6000	19'–11"	9'–11"	10'–5"	7'–1"	5'–8"
	7000	19'–11"	9'–11"	10'–5"	8'–0"	6'–7"

NOTES:

1. CONCRETE: 28 DAY COMPRESSIVE STRENGTH f'c = 4500 psi
2. REBAR: ASTM A–615 GRADE 60
3. MESH: ASTM A–185 GRADE 65
4. DESIGN: ACI–318–83 BUILDING CODE ASTM C–857 "MINIMUM STRUCTURAL DESIGN LOADING FOR UNDERGROUND PRECAST CONCRETE UTILITY STRUCTURES"
5. MINIMUM VAULT DIMENSIONS BASED ON UTILITY VAULT. OTHER MANUFACTURER'S SIZING MAY VARY.

* SEE CITY STANDARD DETAIL NO. 04.06.02 FOR ADDITIONAL NOTES

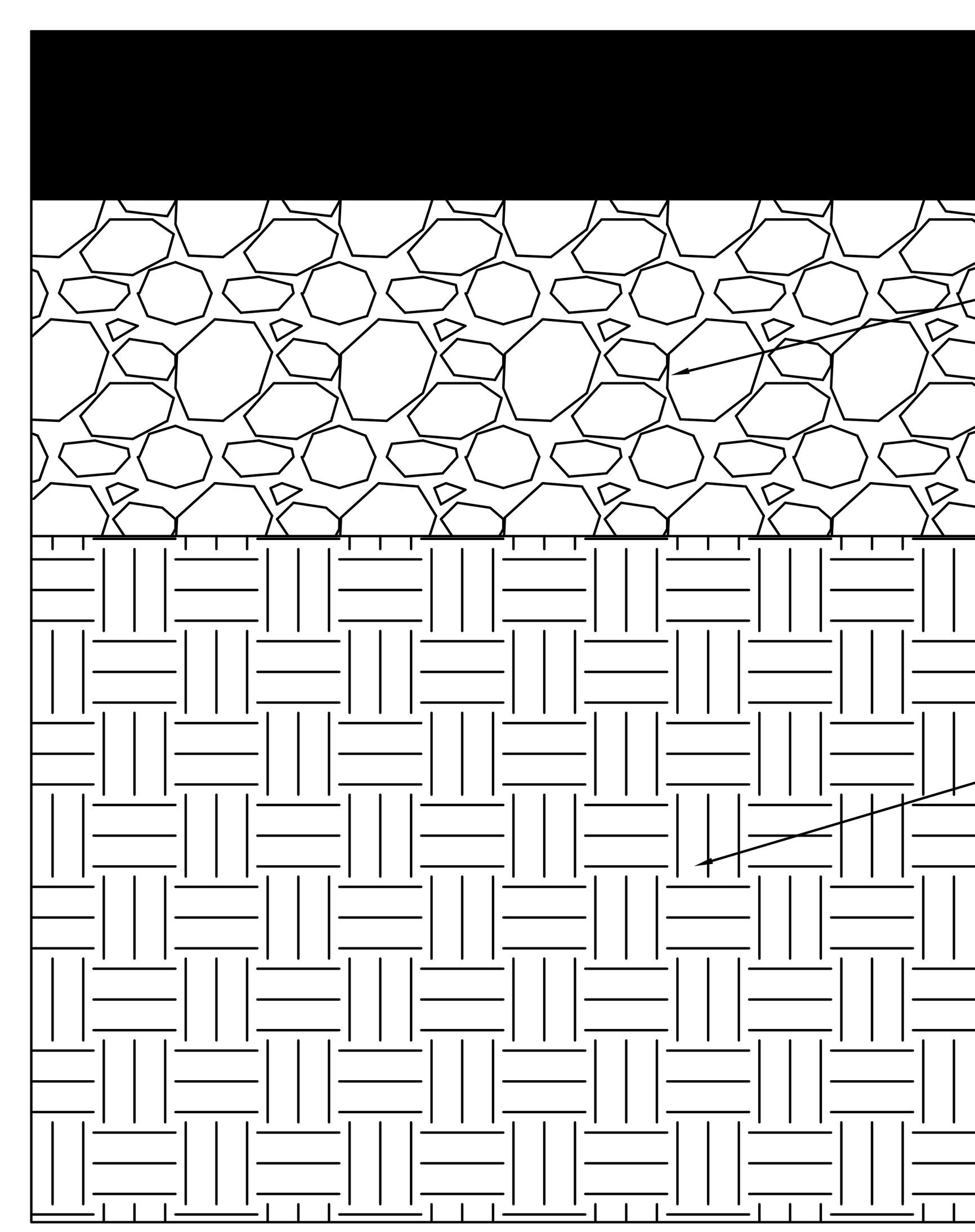
CITY OF PUYALLUP — DEVELOPMENT ENGINEERING and PUBLIC WORKS DEPARTMENTS — GREASE INTERCEPTOR — CITY STANDARD 04.06.01

NOTES FOR GREASE INTERCEPTORS:

1. THE PLANS & SPECIFICATIONS SHALL ILLUSTRATE PROPERTY BOUNDARIES, PIPING/DRAINAGE DETAILS AND CONNECTIONS TO THE SANITARY SEWER. DETAIL AND ELEVATION DRAWINGS OF THE GREASE INTERCEPTOR SHALL INCLUDE SIZING CALCULATIONS IN ACCORDANCE WITH THE UNIFORM PLUMBING CODE CURRENTLY ADOPTED BY THE CITY OF PUYALLUP.
2. VENTING OF THE INTERCEPTOR SHALL BE IN ACCORDANCE WITH THE UNIFORM PLUMBING CODE CURRENTLY ADOPTED BY THE CITY OF PUYALLUP.
3. EFFLUENT FROM GREASE INTERCEPTORS SHALL NOT EXCEED 100 mg/L FAT, OIL, AND/OR GREASE DISCHARGED TO THE DOWNSTREAM SANITARY SEWER SYSTEM.
4. GREASE INTERCEPTORS INSTALLED IN PAVED AREAS SHALL COMPLY WITH H-20 LOADING CRITERIA.
5. THE GREASE INTERCEPTOR SHALL BE INSTALLED AND CONNECTED SUCH THAT IT SHALL BE EASILY ACCESSIBLE FOR INSPECTION, CLEANING, AND REMOVAL AT ALL TIMES. MANHOLE COVERS SHALL BE GAS TIGHT AND HAVE A MINIMUM OPENING OF 24-INCHES IN DIAMETER.
6. NO SANITARY WASTEWATER SHALL BE CONVEYED TO THE SEPARATOR. A SEPARATE SIDE SEWER SHALL BE REQUIRED TO CARRY SANITARY WASTEWATER TO THE SEWER MAIN AND SHALL BE PLACED AS CLOSE TO THE SERVICE AREA AS PRACTICAL.
7. PLUMBING/PIPING SHALL BE CONSTRUCTED TO ESTABLISH "PARALLEL FLOW" (90-DEGREES TO THE TANK BAFFLE) THROUGH THE GREASE INTERCEPTOR. NO RADIUS, BEND, OR ELBOW SHALL BE ALLOWED IN THE INLET PIPE UPSTREAM OF THE INTERCEPTOR FOR A MINIMUM OF 10-FEET, OR 20-PIPE DIAMETERS, WHICHEVER IS GREATER.
8. ANY PUMP MECHANISM SHALL BE INSTALLED DOWNSTREAM OF THE INTERCEPTOR TO PREVENT FAT, OIL AND GREASE EMULSIFICATION. A "TEE" CONNECTION SHALL BE INSTALLED IN THE DISCHARGE PIPING TO PROVIDE FOR SAMPLE COLLECTION
9. ALL GREASE INTERCEPTORS SHALL BE FILLED WITH CLEAN WATER BEFORE USE.
10. THE DESIGN ENGINEER SHALL PROVIDE ENGINEERING SERVICES STAFF WITH A LETTER OF INSPECTION CERTIFYING THAT THE INSTALLATION WAS PERFORMED IN ACCORDANCE WITH ALL REGULATIONS AND THE APPROVED PLAN.
11. FINAL INSPECTION IS REQUIRED BY ENGINEERING SERVICES STAFF PRIOR TO CONNECTING TO THE SANITARY SEWER.
12. THE PROPERTY OWNER SHALL RETAIN OWNERSHIP OF THE GREASE INTERCEPTOR AND SIDE SEWER LINES AND SHALL BE RESPONSIBLE FOR THEIR OPERATION AND MAINTENANCE. A SERVICE/MAINTENANCE RECORD SHALL BE KEPT ON THE PREMISES AT ALL TIMES AND SHALL BE IMMEDIATELY AVAILABLE TO CITY OF PUYALLUP STAFF UPON REQUEST.
13. THE PROPERTY OWNER SHALL REPORT IMMEDIATELY TO THE CITY'S INDUSTRIAL PRETREATMENT SPECIALIST ANY SPILL, SURCHARGE, BYPASS, OR MECHANICAL FAULT AND/OR FAILURE WHICH INTERRUPTS, OR OTHERWISE REDUCES THE CAPACITY OR REMOVAL EFFICIENCY OF THE GREASE INTERCEPTOR BY CALLING (253) 841-5523.

CITY OF PUYALLUP — OFFICE of THE CITY ENGINEER — GREASE INTERCEPTOR (NOTES) — CITY STANDARD 04.06.02

4 GREASE INTERCEPTOR AND NOTES
NOT TO SCALE



5 PAVING DETAIL
NOT TO SCALE

811 Know what's below. Call before you dig.

APPROVED

BY ______ CITY OF PUYALLUP DEVELOPMENT ENGINEERING

DATE ______

NOTE: THIS APPROVAL IS VOID AFTER 180 DAYS FROM APPROVAL DATE. THE CITY WILL NOT BE RESPONSIBLE FOR ERRORS AND/OR OMISSIONS ON THESE PLANS. FIELD CONDITIONS MAY DICTATE CHANGES TO THESE PLANS AS DETERMINED BY THE DEVELOPMENT ENGINEERING MANAGER.

AHBL
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2215 North 30th Street, Suite 300, Tacoma, WA 98403
253.383.2422 TEL 253.383.2572 FAX www.ahbl.com WEB

Project Title: EAST TOWN CROSSING PHASE 1

Client: ASH DEVELOPMENT

GREG HELLE

GREG.HELLE@ASHNW.COM

Project No. 2230752

Issue Set & Date: PERMIT SUBMITTAL 02/20/2024

CODD CHRISTOPHER SAWIN — STATE OF WASHINGTON — 46416 — REGISTERED PROFESSIONAL ENGINEER — 02/21/2024

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4

3

2

1 01/29/24 CITY COMMENTS

Revisions:

Sheet Title: SEWER NOTES AND DETAILS

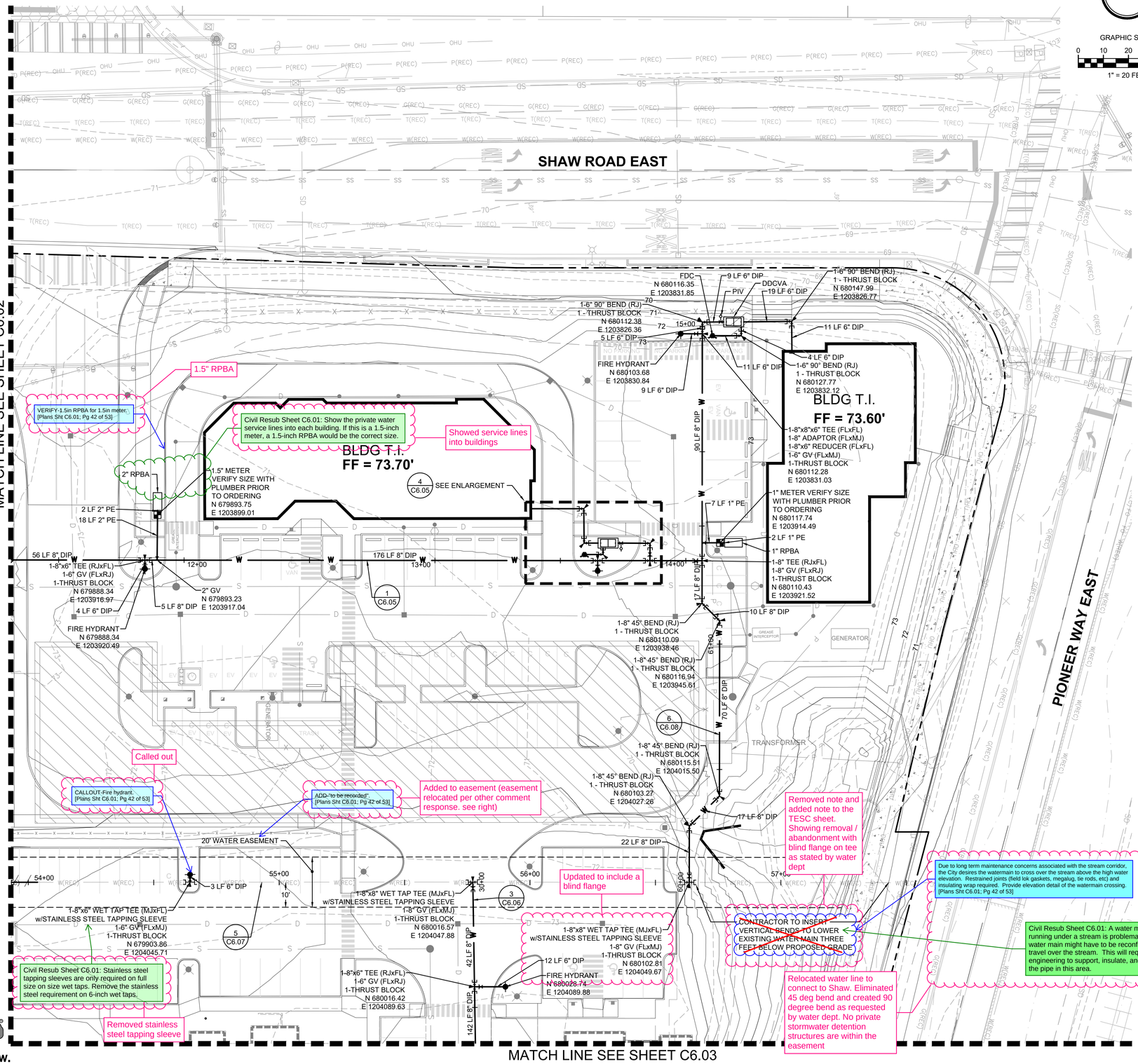
Designed by:	Drawn by:	Checked by:
CW	SK / RS	JI

Sheet No. C5.08

41 of 53 Sheets

EAST TOWN CROSSING PHASE 1

SEC. 26,35/ TWP. 20 N./ RGE. 4 E., W.M.



GRAPHIC SCALE
0 10 20 40
1" = 20 FEET

FIRE HYDRANT/FDC LOCATION/ACCESS APPROVED
BY _____ CITY OF PUYALLUP FIRE CODE OFFICIAL
DATE _____
NOTE: THIS APPROVAL IS VOID AFTER 1 YEAR FROM APPROVAL DATE.
THE CITY WILL NOT BE RESPONSIBLE FOR ERRORS AND/OR OMISSIONS ON THESE PLANS.
FIELD CONDITIONS MAY DICTATE CHANGES TO THESE PLANS AS DETERMINED BY THE FIRE CODE OFFICIAL.

APPROVED
BY _____ CITY OF PUYALLUP DEVELOPMENT ENGINEERING
DATE _____
NOTE: THIS APPROVAL IS VOID AFTER 180 DAYS FROM APPROVAL DATE.
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FIELD CONDITIONS MAY DICTATE CHANGES TO THESE PLANS AS DETERMINED BY THE DEVELOPMENT ENGINEERING MANAGER.

GENERAL NOTES

1. WET TAPS TO EXISTING WATER MAINS SHALL BE ACCOMPLISHED THROUGH A TAPPING TEE AND TAPPING VALVE, AND SHALL BE MADE BY A CITY APPROVED CONTRACTOR. THE TAPPING SLEEVE SHALL BE ROMAC SST ALL STAINLESS STEEL TAPPING SLEEVE OR APPROVED EQUAL. A TWO-PIECE EPOXY COATED OR DUCTILE IRON TAPPING SLEEVE MAY BE USED ON DUCTILE IRON PIPE, WHEN THE TAP IS SMALLER THAN THE WATER MAIN, I.E. 6" TAP ON 8" PIPE. THE CITY SHALL APPROVE THE TIME AND LOCATION FOR THESE CONNECTIONS.
2. IF THE PROJECT IS UTILIZING A FIRE BOOSTER PUMP, THE FDC MUST CONNECT TO THE SPRINKLER SYSTEM ON THE DISCHARGE SIDE OF THE PUMP IN ACCORDANCE WITH NFPA REGULATIONS.

DETAIL REFERENCES

FIRE PROTECTION NOTES

THE FIRE PROTECTION SYSTEM INCLUDING MATERIALS, SIZING, AND CONFIGURATION IS SUBJECT TO A CONTRACTOR PROVIDED DESIGN BY A FIRE PROTECTION ENGINEER, AND AS SUCH, THE FINAL DESIGN OF THE FIRE PROTECTION SYSTEM MAY DEVIATE FROM THE SYSTEM SHOWN. THE FIRE PROTECTION SYSTEM AS SHOWN FROM THE MAIN LINE TO THE CONNECTION AT THE BUILDING SPRINKLER IS INTENDED FOR LOCATION OF THE FIRE HYDRANTS AND FIRE DEPARTMENT CONNECTION ONLY. CONTRACTOR'S BID SHALL REFLECT THE CONDITIONS OF THE FIRE PROTECTION ENGINEER'S DESIGN. CONTRACTOR SHALL COMPLY WITH ALL NATIONAL FIRE PROTECTION ASSOCIATION REQUIREMENTS AS SET FORTH BY "NFPA 13", ITS AMENDMENTS, AND LOCAL REQUIREMENTS, INCLUDING BUT NOT LIMITED TO ACQUISITION OF ALL PERMITS.

FIRE SPRINKLER NOTE

WHERE THE UNDERGROUND WATER SUPPLY TEES OFF TO SERVE ONLY A FIRE SPRINKLER SYSTEM AND/OR FIRE HYDRANTS, A SEPARATE DETAILED PLAN MUST BE SUBMITTED AND APPROVED BY THE FIRE MARSHAL PRIOR TO INSTALLATION.

Know what's **below.** **Call** before you dig.

DATE: February 21, 2024 FILENAME: Q:\2023\2230752\10_CIV\CAD\2230752-SH-WATR.dwg

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253.383.2422 TEL 253.383.2572 FAX www.ahbl.com WEB

Project Title:
EAST TOWN CROSSING PHASE 1

Client:
ASH DEVELOPMENT
GREG HELLE
GREG.HELLE@ASHNW.COM

Project No.
2230752

Issue Set & Date:
PERMIT SUBMITTAL
02/20/2024

TODD CHRISTOPHER SAVAGE — STATE OF WASHINGTON — 46416 — REGISTERED PROFESSIONAL ENGINEER
02/21/2024

A
B
C
1 01/29/24 CITY COMMENTS
Revisions:

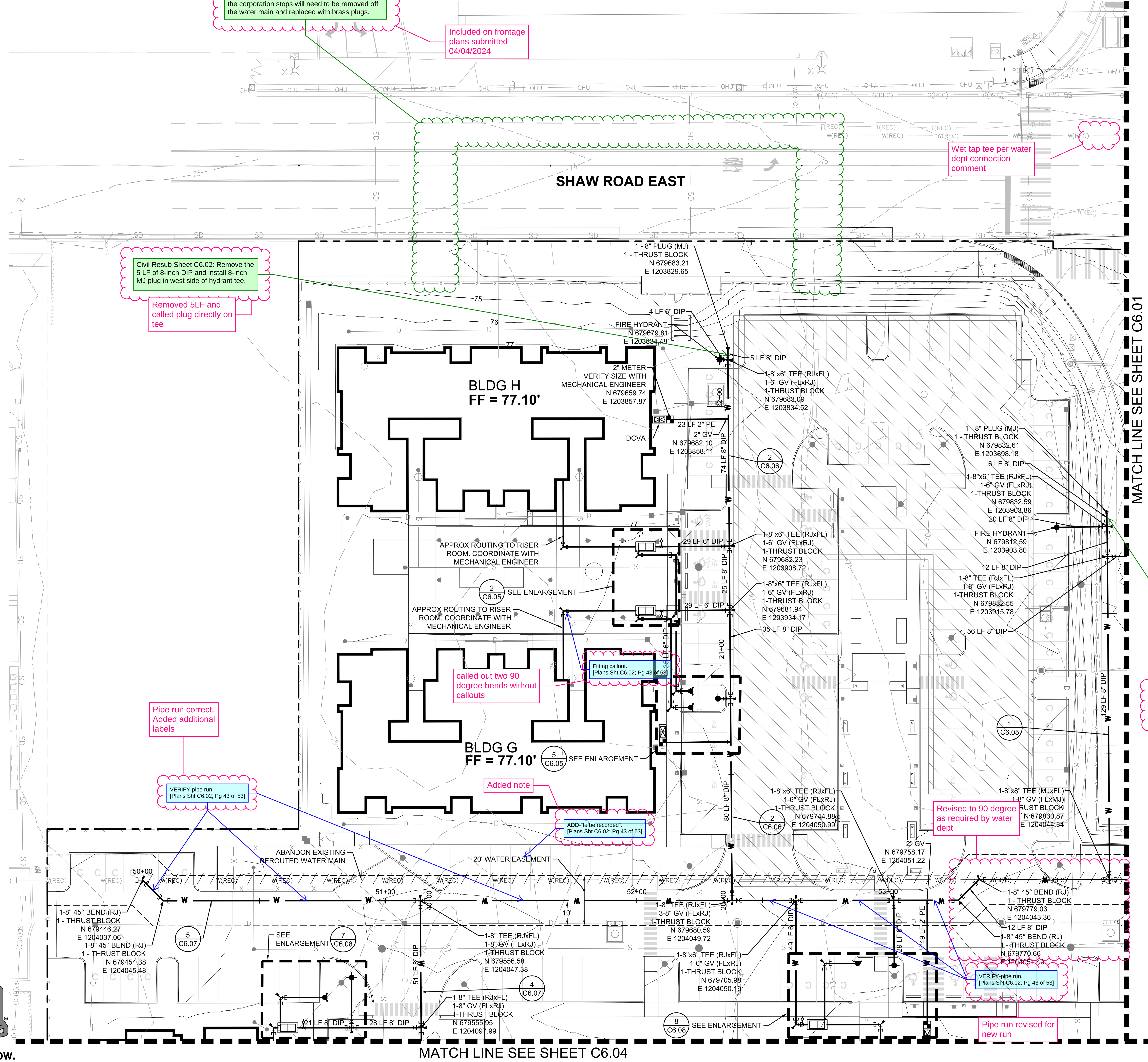
Sheet Title:
WATER PLAN NW

Designed by:	Drawn by:	Checked by:
CW	SK / RS	JI

Sheet No.
C6.01
42 of 53 Sheets

EAST TOWN CROSSING PHASE 1
SEC. 26,35/ TWP. 20 N./ RGE. 4 E., W.M.

GRAPHIC SCALE 0 10 20 40
1" = 20 FEET



Civil Resub Sheet C6.02: There are two old water services on Shaw Road that need to be removed as part of this project. A water main shutdown will need to be scheduled with the Water Division, and the corporation stops will need to be removed off the water main and replaced with brass plugs.
Included on frontage plans submitted 04/04/2024
SHAW ROAD EAST
Wet tap tee per water dept connection comment
Civil Resub Sheet C6.02: Remove the 5 LF of 8-inch DIP and install 8-inch MJ plug in west side of hydrant tee.
Removed 5LF and called plug directly on tee
1 - 8" PLUG (MJ)
1 - THRUST BLOCK
N 679683.21
E 1203829.65
4 LF 6" DIP
FIRE HYDRANT
N 679679.81
E 1203834.48
5 LF 8" DIP
1-8"x6" TEE (RJxFL)
1-6" GV (FLxRJ)
1-THRUST BLOCK
N 679683.09
E 1203834.52
2" METER
VERIFY SIZE WITH MECHANICAL ENGINEER
N 679659.74
E 1203857.87
BLDG H
FF = 77.10'
23 LF 2" PE
2" GV
N 679682.10
E 1203858.11
DCVA
74 LF 8" DIP
1 - 8" PLUG (MJ)
1 - THRUST BLOCK
N 679832.61
E 1203898.18
6 LF 8" DIP
1-8"x6" TEE (RJxFL)
1-6" GV (FLxRJ)
1-THRUST BLOCK
N 679832.59
E 1203903.86
20 LF 8" DIP
FIRE HYDRANT
N 679812.59
E 1203903.80
12 LF 8" DIP
1-8" TEE (RJxFL)
1-8" GV (FLxRJ)
1-THRUST BLOCK
N 679832.55
E 1203915.78
56 LF 8" DIP
APPROX ROUTING TO RISER ROOM. COORDINATE WITH MECHANICAL ENGINEER
29 LF 6" DIP
1-8"x6" TEE (RJxFL)
1-6" GV (FLxRJ)
1-THRUST BLOCK
N 679682.23
E 1203908.72
25 LF 8" DIP
SEE ENLARGEMENT
29 LF 6" DIP
1-8"x6" TEE (RJxFL)
1-6" GV (FLxRJ)
1-THRUST BLOCK
N 679681.94
E 1203934.17
35 LF 8" DIP
MATCH LINE SEE SHEET C6.01
129 LF 8" DIP
Fitting callout. [Plans Sht C6.02; Pg 43 of 53]
called out two 90 degree bends without callouts
Civil Resub Sheet C6.02: Remove the 6 LF of 8-inch DIP and install 8-inch MJ plug in west side of hydrant tee.
Water line connects through to Shaw now
Pipe run correct. Added additional labels
BLDG G
FF = 77.10'
SEE ENLARGEMENT
Added note
VERIFY-pipe run. [Plans Sht C6.02; Pg 43 of 53]
ADD-"to be recorded". [Plans Sht C6.02; Pg 43 of 53]
1-8"x6" TEE (RJxFL)
1-6" GV (FLxRJ)
1-THRUST BLOCK
N 679744.88
E 1204050.99
80 LF 8" DIP
Revised to 90 degree as required by water dept
1-8"x8" TEE (MJxFL)
1-8" GV (FLxMJ)
1-THRUST BLOCK
N 679830.87
E 1204044.34
2" GV
N 679758.17
E 1204051.22
ABANDON EXISTING REROUTED WATER MAIN
20' WATER EASEMENT
50+00
51+00
52+00
53+00
1-8" 45° BEND (RJ)
1 - THRUST BLOCK
N 679446.27
E 1204037.06
1-8" 45° BEND (RJ)
1 - THRUST BLOCK
N 679454.38
E 1204045.48
SEE ENLARGEMENT
1-8" TEE (RJxFL)
1-8" GV (FLxRJ)
1-THRUST BLOCK
N 679556.58
E 1204047.38
1-8" TEE (RJxFL)
3-8" GV (FLxRJ)
1-THRUST BLOCK
N 679680.59
E 1204049.72
1-8"x6" TEE (RJxFL)
1-6" GV (FLxRJ)
1-THRUST BLOCK
N 679705.98
E 1204050.19
49 LF 6" DIP
49 LF 2" PE
1-8" 45° BEND (RJ)
1 - THRUST BLOCK
N 679779.03
E 1204043.36
12 LF 8" DIP
1-8" 45° BEND (RJ)
1 - THRUST BLOCK
N 679770.66
E 1204051.40
VERIFY-pipe run. [Plans Sht C6.02; Pg 43 of 53]
51 LF 8" DIP
1-8" TEE (RJxFL)
1-8" GV (FLxRJ)
1-THRUST BLOCK
N 679555.95
E 1204097.99
21 LF 8" DIP
28 LF 8" DIP
SEE ENLARGEMENT
Pipe run revised for new run
MATCH LINE SEE SHEET C6.04

811 Know what's **below**. **Call** before you dig.

FIRE HYDRANT/FDC LOCATION/ACCESS APPROVED

BY ____ CITY OF PUYALLUP FIRE CODE OFFICIAL

DATE ____

NOTE: THIS APPROVAL IS VOID AFTER 1 YEAR FROM APPROVAL DATE.

THE CITY WILL NOT BE RESPONSIBLE FOR ERRORS AND/OR OMISSIONS ON THESE PLANS.

FIELD CONDITIONS MAY DICTATE CHANGES TO THESE PLANS AS DETERMINED BY THE FIRE CODE OFFICIAL.

APPROVED

BY ____ CITY OF PUYALLUP DEVELOPMENT ENGINEERING

DATE ____

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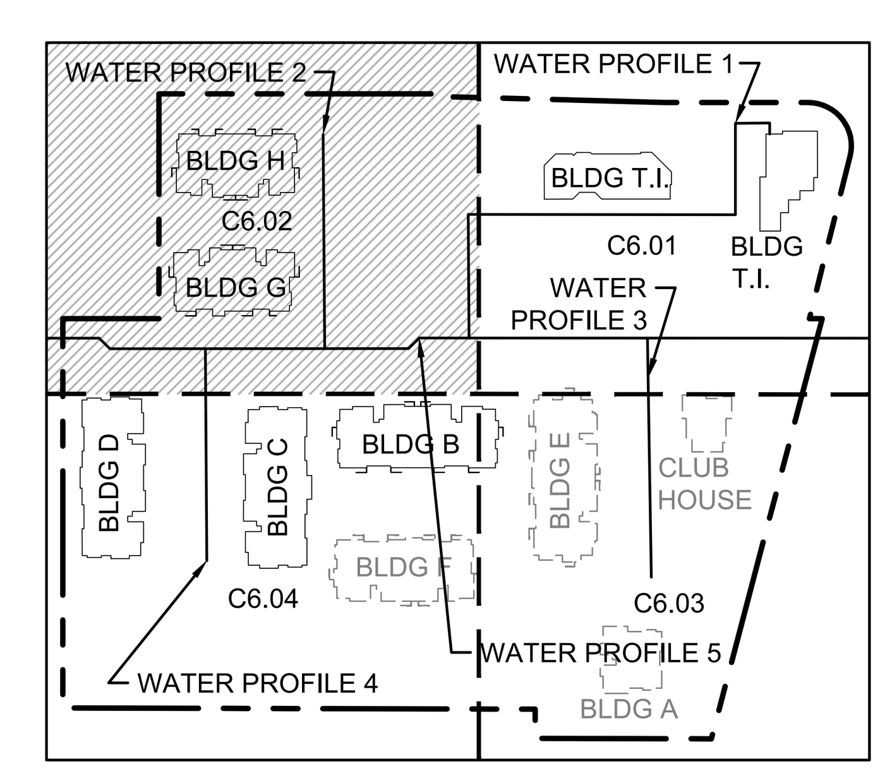
2. IF THE PROJECT IS UTILIZING A FIRE BOOSTER PUMP, THE FDC MUST CONNECT TO THE SPRINKLER SYSTEM ON THE DISCHARGE SIDE OF THE PUMP IN ACCORDANCE WITH NFPA REGULATIONS.

DETAIL REFERENCES

HORIZONTAL THRUST BLOCKING	1 / C6.09
VERTICAL THRUST BLOCKING	2 / C6.09
THRUST BLOCKING TABLE	3 / C6.09
3/4" OR 1" WATER SERVICE CONNECTION	4 / C6.09
1-1/2" OR 2" WATER SERVICE CONNECTION	5 / C6.09
PRIVATE WATER SERVICE LINES	6 / C6.09
2" AND SMALLER DCVA INSTALLATION	7 / C6.09
FIRE HYDRANT ASSEMBLY	8 / C6.09
2" BLOW-OFF ASSEMBLY	1 / C6.10
DDCVA ASSEMBLY AND NOTES	2 / C6.10, 3 / C6.10
FIRE DEPARTMENT CONNECTION	4 / C6.10
POST INDICATOR VALVE	5 / C6.10
WATER VALVES AND MAINS	1 / C6.11
WATER MAIN CROSSING OTHER UTILITIES AND NOTES	2 / C6.11, 3 / C6.11
2" AND SMALLER RPBA ASSEMBLY INSTALLATION	4 / C6.11
WATER VAULT DETAILS	5 / C6.11



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Project No.
2230752

Issue Set & Date:
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TODD CHRISTOPHER SAWIN, STATE OF WASHINGTON, 46416, REGISTERED PROFESSIONAL ENGINEER
02/21/2024

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1 01/29/24 CITY COMMENTS

Revisions:

Sheet Title:
WATER PLAN SW

Designed by:	Drawn by:	Checked by:
CW	SK / RS	JI

Sheet No.
C6.02
43 of 53 Sheets

DATE: February 21, 2024 FILENAME: Q:\2023\2230752\10_CIV\CAD\2230752-SH-WATR.dwg

EAST TOWN CROSSING PHASE 1
SEC. 26,35/ TWP. 20 N./ RGE. 4 E., W.M.

GRAPHIC SCALE
0 10 20 40
1" = 20 FEET

FIRE HYDRANT/FDC LOCATION/ACCESS APPROVED
BY _____ CITY OF PUYALLUP FIRE CODE OFFICIAL
DATE _____
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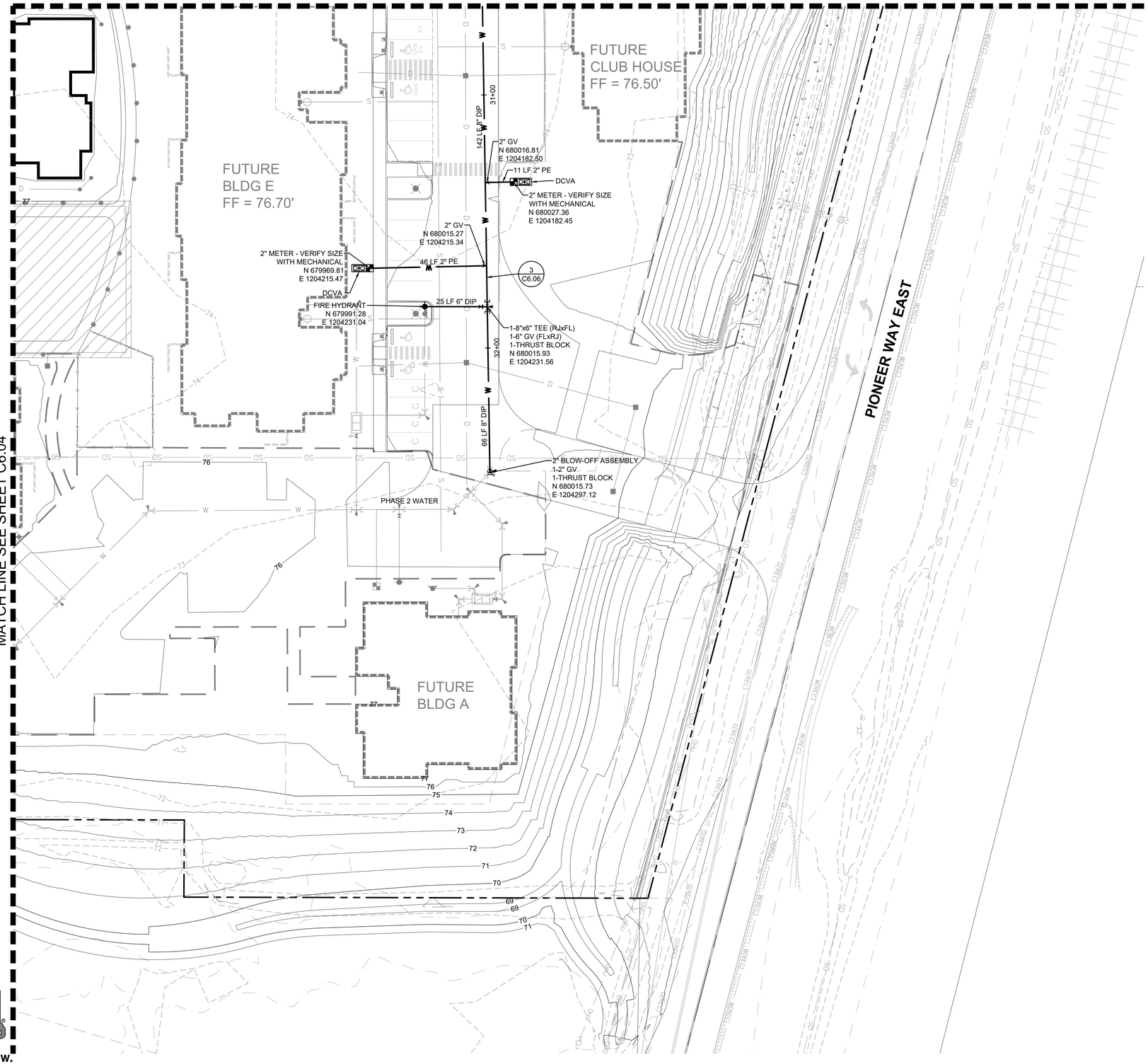

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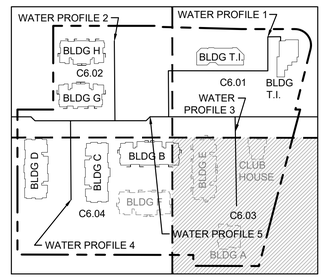
DETAIL REFERENCES

HORIZONTAL THRUST BLOCKING 1 C6.09
VERTICAL THRUST BLOCKING 2 C6.09
THRUST BLOCKING TABLE 3 C6.09
3/4" OR 1" WATER SERVICE CONNECTION 4 C6.09
1-1/2" OR 2" WATER SERVICE CONNECTION 5 C6.09
PRIVATE WATER SERVICE LINES 6 C6.09
2" AND SMALLER DCVA INSTALLATION 7 C6.09
FIRE HYDRANT ASSEMBLY 8 C6.09
2" BLOW-OFF ASSEMBLY 1 C6.10
DDCVA ASSEMBLY AND NOTES 2 C6.10 3 C6.10
FIRE DEPARTMENT CONNECTION 4 C6.10
POST INDICATOR VALVE 5 C6.10
WATER VALVES AND MAINS 1 C6.11
WATER MAIN CROSSING OTHER UTILITIES AND NOTES 2 C6.11 3 C6.11
2" AND SMALLER RPBA ASSEMBLY INSTALLATION 4 C6.11
WATER VAULT DETAILS 5 C6.11



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Project Title:
EAST TOWN CROSSING PHASE 1

Client:
ASH DEVELOPMENT
GREG HELLE
GREG.HELLE@ASHNW.COM

Project No.
2230752

Issue Set & Date:
PERMIT SUBMITTAL
02/20/2024

TODD CHRISTOPHER SALMI — STATE OF WASHINGTON — 46416 — REGISTERED PROFESSIONAL ENGINEER
02/21/2024

4
3
2
1 01/29/24 CITY COMMENTS
Revisions:

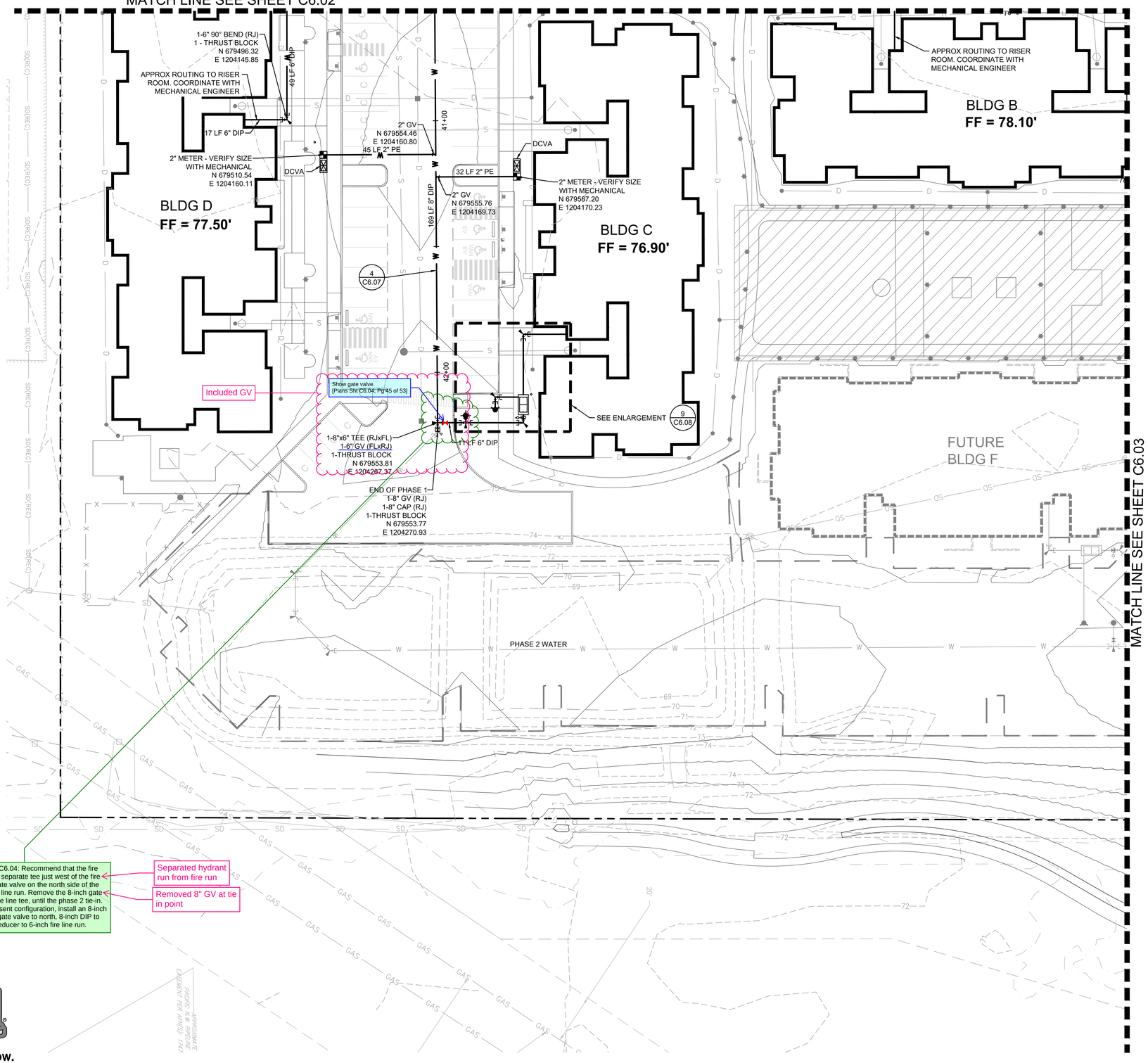
Sheet Title:
WATER PLAN NE

Designed by: CW | Drawn by: SK / RS | Checked by: JI

Sheet No.
C6.03
44 of 53 Sheets

EAST TOWN CROSSING PHASE 1
SEC. 26,35/ TWP. 20 N./ RGE. 4 E., W.M.

GRAPHIC SCALE
0 10 20 40
1" = 20 FEET



Civil Resub Sheet C6.04: Recommend that the fire hydrant run is off a separate tee just west of the fire line tee. Install a gate valve on the north side of the tee for the solo fire line run. Remove the 8-inch gate valve east of the fire line tee, until the phase 2 tie-in. If you keep the present configuration, install an 8-inch by 8-inch tee with gate valve to north, 8-inch DIP to hydrant tee, then reducer to 6-inch fire line run.

Separated hydrant run from fire run

Removed 8" GV at tie in point

811 Know what's **below.** **Call** before you dig.

FIRE HYDRANT/FDC LOCATION/ACCESS APPROVED

BY _____
CITY OF PUYALLUP
FIRE CODE OFFICIAL

DATE _____

NOTE:
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THE CITY WILL NOT BE RESPONSIBLE FOR ERRORS AND/OR OMISSIONS ON THESE PLANS.

FIELD CONDITIONS MAY DICTATE CHANGES TO THESE PLANS AS DETERMINED BY THE FIRE CODE OFFICIAL.

APPROVED

BY _____
CITY OF PUYALLUP
DEVELOPMENT ENGINEERING

DATE _____

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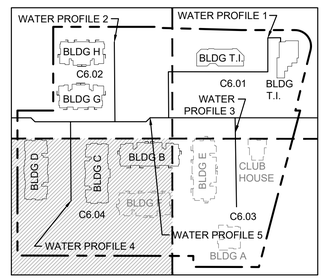
GENERAL NOTES

1. WET TAPS TO EXISTING WATER MAINS SHALL BE ACCOMPLISHED THROUGH A TAPPING TEE AND TAPPING VALVE, AND SHALL BE MADE BY A CITY APPROVED CONTRACTOR. THE TAPPING SLEEVE SHALL BE ROMAC SST ALL STAINLESS STEEL TAPPING SLEEVE OR APPROVED EQUAL. A TWO-PIECE EPOXY COATED OR DUCTILE IRON TAPPING SLEEVE MAY BE USED ON DUCTILE IRON PIPE, WHEN THE TAP IS SMALLER THAN THE WATER MAIN, I.E. 6" TAP ON 8" PIPE. THE CITY SHALL APPROVE THE TIME AND LOCATION FOR THESE CONNECTIONS.
2. IF THE PROJECT IS UTILIZING A FIRE BOOSTER PUMP, THE FDC MUST CONNECT TO THE SPRINKLER SYSTEM ON THE DISCHARGE SIDE OF THE PUMP IN ACCORDANCE WITH NFPA REGULATIONS.

DETAIL REFERENCES

HORIZONTAL THRUST BLOCKING 1 C6.09
VERTICAL THRUST BLOCKING 2 C6.09
THRUST BLOCKING TABLE 3 C6.09
3/4" OR 1" WATER SERVICE CONNECTION 4 C6.09
1-1/2" OR 2" WATER SERVICE CONNECTION 5 C6.09
PRIVATE WATER SERVICE LINES 6 C6.09
2" AND SMALLER DCVA INSTALLATION 7 C6.09
FIRE HYDRANT ASSEMBLY 8 C6.09
2" BLOW-OFF ASSEMBLY 1 C6.10
DDCVA ASSEMBLY AND NOTES 2 C6.10, 3 C6.10
FIRE DEPARTMENT CONNECTION 4 C6.10
POST INDICATOR VALVE 5 C6.10
WATER VALVES AND MAINS 1 C6.11
WATER MAIN CROSSING OTHER UTILITIES AND NOTES 2 C6.11, 3 C6.11
2" AND SMALLER RPBA ASSEMBLY INSTALLATION 4 C6.11
WATER VAULT DETAILS 5 C6.11



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GREG HELLE
GREG.HELLE@ASHNW.COM

Project No.
2230752

Issue Set & Date:
PERMIT SUBMITTAL
02/20/2024

TODD CHRISTOPHER SWINT — STATE OF WASHINGTON — 46416 — REGISTERED PROFESSIONAL ENGINEER
02/21/2024

Revisions:
4
3
2
1 01/29/24 CITY COMMENTS

Sheet Title:
WATER PLAN SE

Designed by:	Drawn by:	Checked by:
CW	SK / RS	JI

Sheet No.
C6.04
45 of 53 Sheets

DATE: February 21, 2024 FILENAME: Q:\2023\2230752\10_CIV\CAD\2230752-SH-WATR.dwg

EAST TOWN CROSSING PHASE 1
SEC. 26,35/ TWP. 20 N./ RGE. 4 E., W.M.

FIRE HYDRANT/FDC LOCATION/ACCESS APPROVED

BY _____
CITY OF PUYALLUP FIRE CODE OFFICIAL

DATE _____

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CITY OF PUYALLUP DEVELOPMENT ENGINEERING

DATE _____

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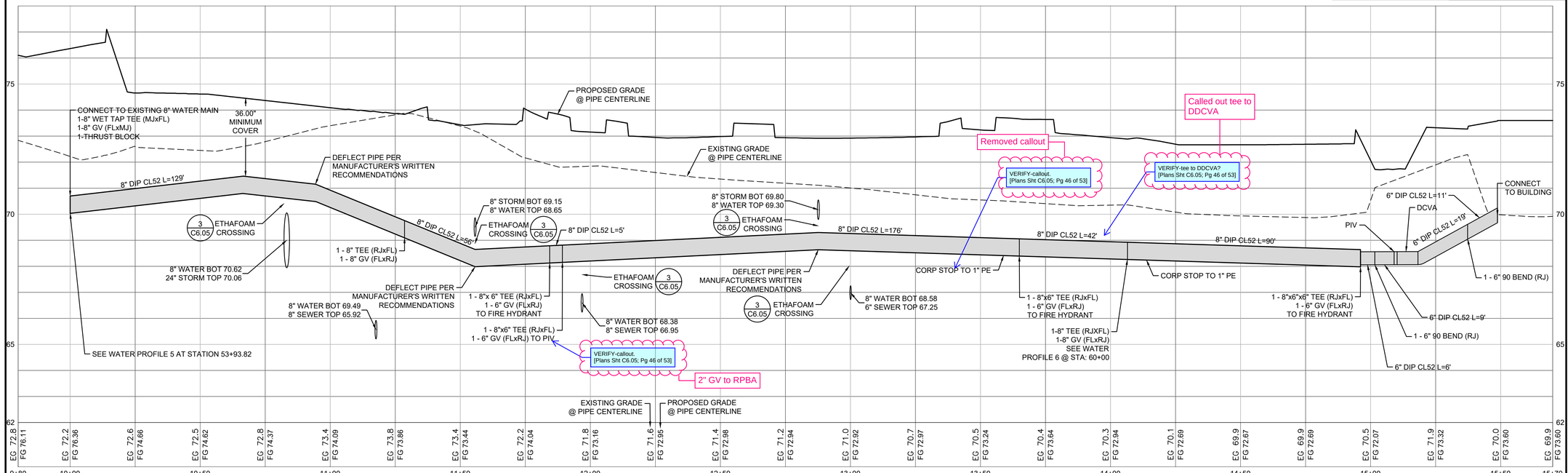
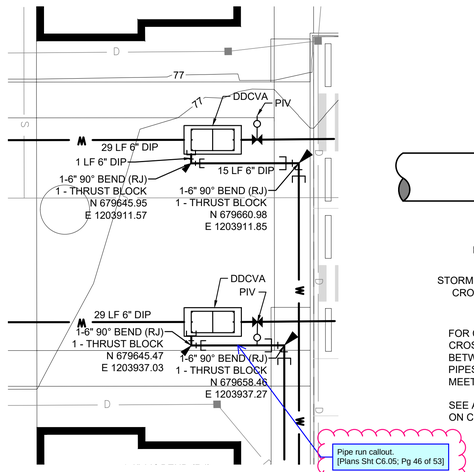
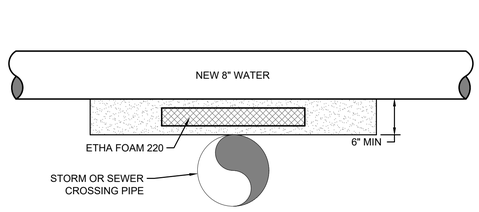


1 WATER PROFILE 1
1"=2' VERTICAL, 1"=20' HORIZONTAL



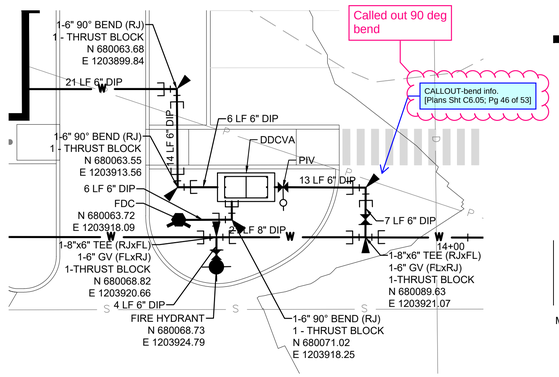
2 ENLARGEMENT
SCALE: 1"=10'



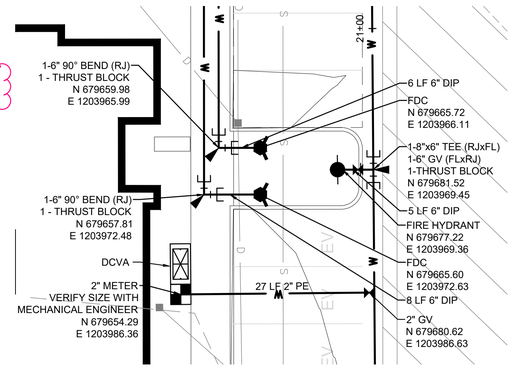
FOR CROSSINGS LESS THAN 12" (18" FOR SEWER AND WATER CROSSINGS), A 3"x48"x108" SHEET OF ETHAFOAM 220 WILL BE PLACED BETWEEN THE PIPES WITH SAND PLACED AROUND THE CROSSING PIPES AND ETHAFOAM SHEET. SEWER AND WATER CROSSINGS SHALL MEET THE 2008 CRITERIA FOR SEWAGE WORKS DESIGN C1-9.1.4

SEE ADDITIONAL CROSSING REQUIREMENTS ON CITY OF PUYALLUP STANDARD DETAILS (2 C6.11) (3 C6.11)

3 ETHAFOAM DETAIL
NOT TO SCALE



4 ENLARGEMENT
SCALE: 1"=10'



5 ENLARGEMENT
SCALE: 1"=10'

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Project Title:

EAST TOWN CROSSING PHASE 1

Client:
ASH DEVELOPMENT

GREG HELLE

GREG.HELLE@ASHNW.COM

Project No.
2230752

Issue Set & Date:

PERMIT SUBMITTAL
02/20/2024

TODD CHRISTOPHER SALMI — STATE OF WASHINGTON — 46416 — REGISTERED PROFESSIONAL ENGINEER
02/21/2024

A
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1 01/29/24 CITY COMMENTS
Revisions:

Sheet Title:

WATER PROFILES

Designed by:	Drawn by:	Checked by:
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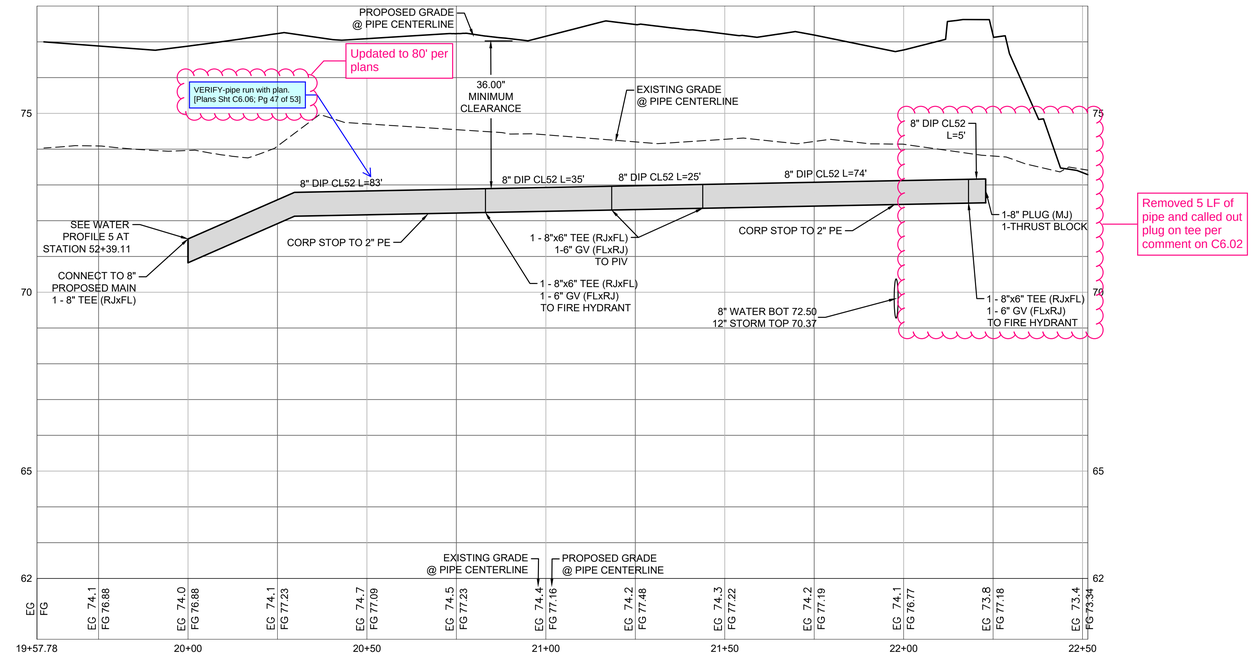
Sheet No.

C6.05

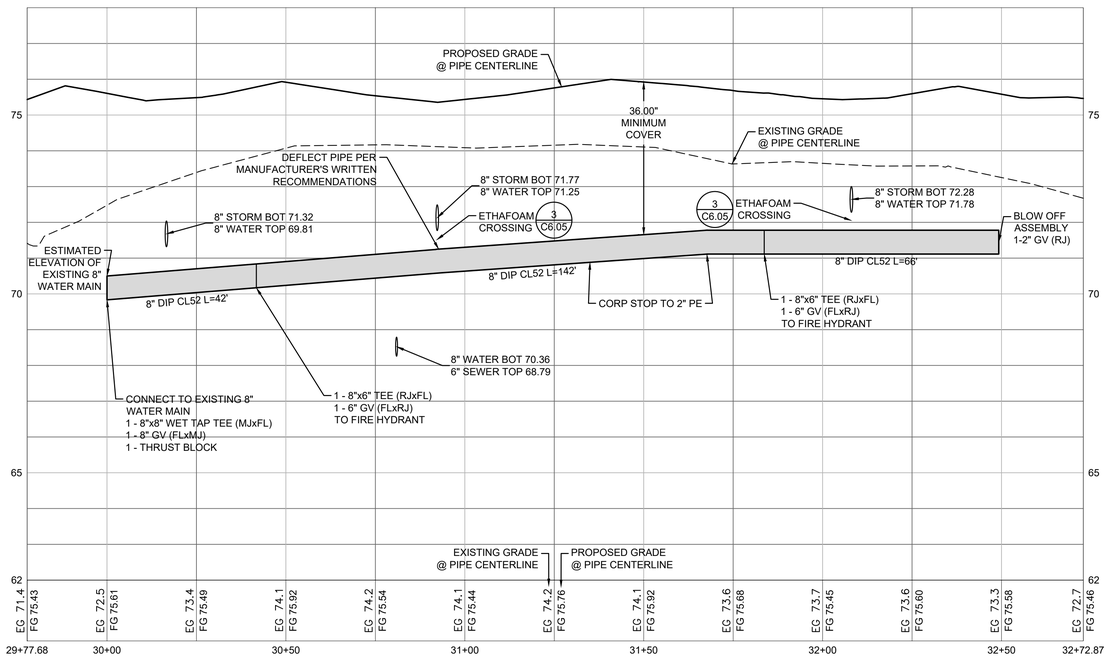
46 of 53 Sheets

EAST TOWN CROSSING PHASE 1
SEC. 26,35/ TWP. 20 N./ RGE. 4 E., W.M.



Removed 5 LF of pipe and called out plug on tee per comment on C6.02

2 WATER PROFILE 2
1"=2' VERTICAL, 1"=20' HORIZONTAL



3 WATER PROFILE 3
1"=2' VERTICAL, 1"=20' HORIZONTAL

Know what's **below.** **Call** before you dig.

DATE: February 21, 2024 FILENAME: Q:\2023\2230752\10_CIV\CAD\2230752-SH-WATR.dwg

FIRE HYDRANT/FDC LOCATION/ACCESS APPROVED

BY _____
CITY OF PUYALLUP
FIRE CODE OFFICIAL

DATE _____

NOTE:
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FIELD CONDITIONS MAY DICTATE CHANGES TO THESE PLANS AS DETERMINED BY THE FIRE CODE OFFICIAL.

APPROVED

BY _____
CITY OF PUYALLUP
DEVELOPMENT ENGINEERING

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Client:
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GREG HELLE

GREG.HELLE@ASHNW.COM

Project No.
2230752

Issue Set & Date:

PERMIT SUBMITTAL

02/20/2024

TODD CHRISTOPHER SWAIN — STATE OF WASHINGTON — 46416 — REGISTERED PROFESSIONAL ENGINEER
02/21/2024

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1 01/29/24 CITY COMMENTS

Revisions:

Sheet Title:

WATER PROFILES

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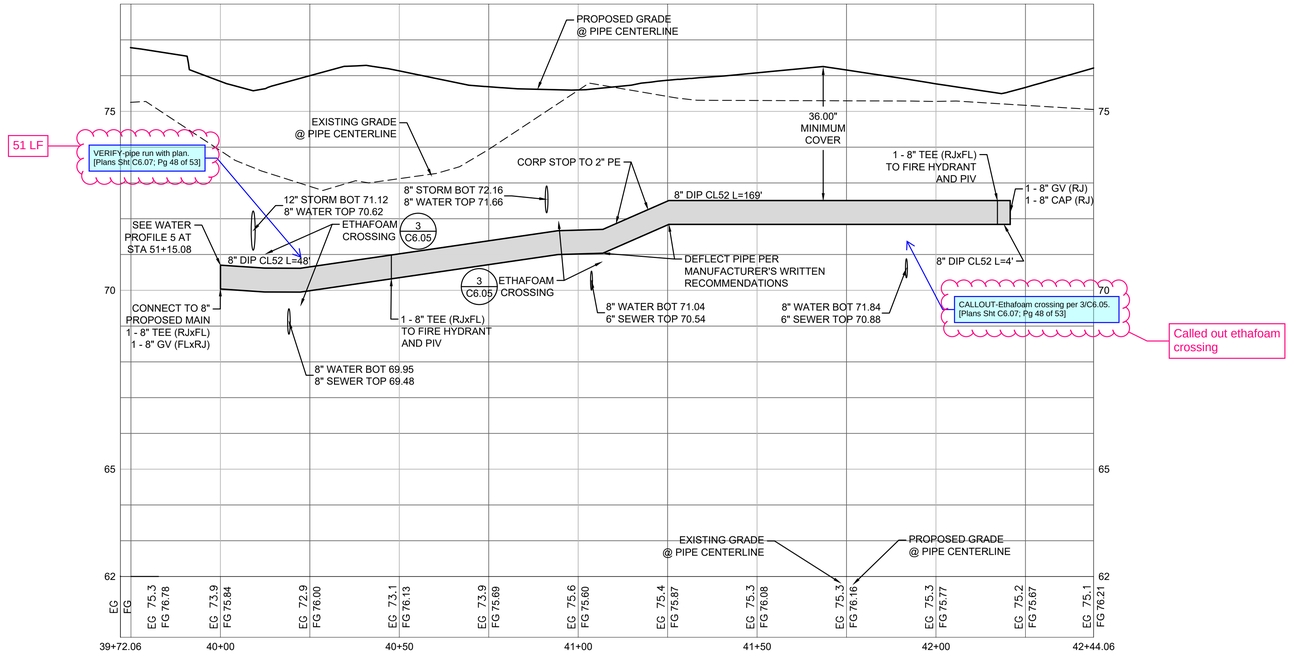
Sheet No.

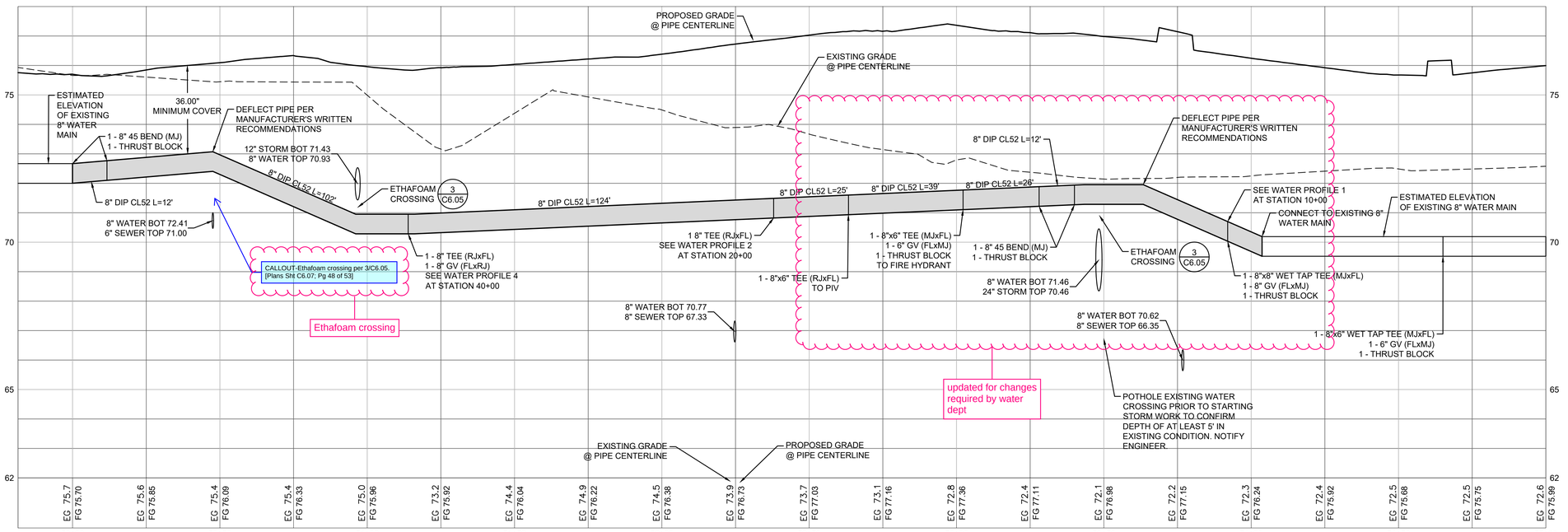
C6.06

47 of 53 Sheets

EAST TOWN CROSSING PHASE 1
SEC. 26,35/ TWP. 20 N./ RGE. 4 E., W.M.



4 **WATER PROFILE 4**
1"=2' VERTICAL, 1"=20' HORIZONTAL



5 **WATER PROFILE 5**
1"=2' VERTICAL, 1"=20' HORIZONTAL

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FIRE CODE OFFICIAL

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TODD CHRISTOPHER SWAIN
STATE OF WASHINGTON
22416
REGISTERED
PROFESSIONAL ENGINEER
02/21/2024

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1 01/29/24 CITY COMMENTS
Revisions:

Sheet Title:

WATER PROFILES

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Sheet No.

C6.07

48 of 53 Sheets

DATE: February 21, 2024 FILENAME: Q:\2023\2230752\10_CIV\CAD\2230752-SH-WATR.dwg

EAST TOWN CROSSING PHASE 1
SEC. 26,35/ TWP. 20 N./ RGE. 4 E., W.M.

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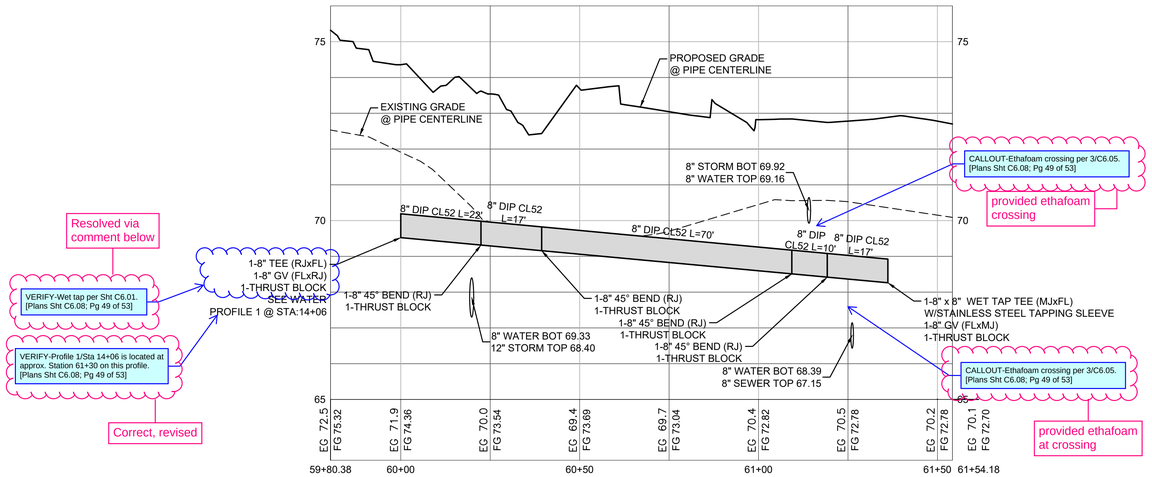


Resolved via comment below

VERIFY-Wet tap per Sht C6.01. [Plans Sht C6.08; Pg 49 of 53]

VERIFY-Profile 1/Sta 14+06 is located at approx. Station 61+30 on this profile. [Plans Sht C6.08; Pg 49 of 53]

Correct, revised

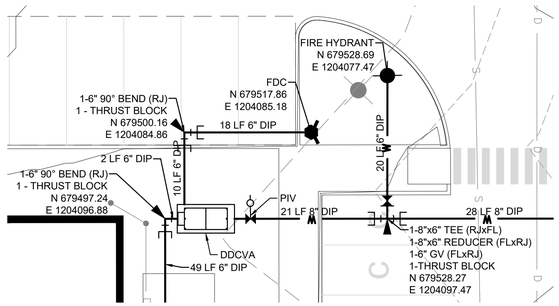
CALLOUT-Ethafoam crossing per 3/C6.05. [Plans Sht C6.08; Pg 49 of 53]

provided ethafoam crossing

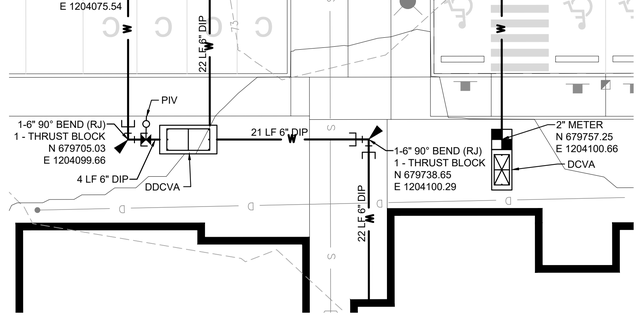
CALLOUT-Ethafoam crossing per 3/C6.05. [Plans Sht C6.08; Pg 49 of 53]

provided ethafoam at crossing

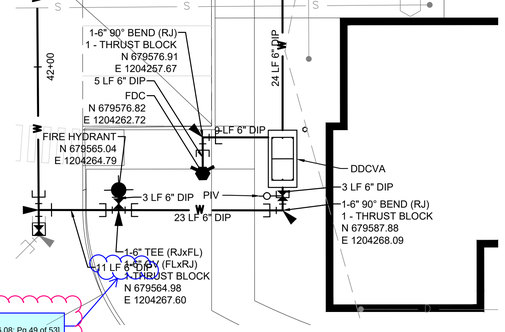
6 WATER PROFILE 6
1"=2' VERTICAL, 1"=20' HORIZONTAL



7 ENLARGEMENT
SCALE: 1"=10'



8 ENLARGEMENT
SCALE: 1"=10'



Readability. [Plans Sht C6.08; Pg 49 of 53]

revised

9 ENLARGEMENT
SCALE: 1"=10'

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02/20/2024

TODD CHRISTOPHER SLAVIN — STATE OF WASHINGTON — 46416 — REGISTERED PROFESSIONAL ENGINEER
02/21/2024

4 _____
3 _____
2 _____
1 01/29/24 CITY COMMENTS

Revisions:

Sheet Title:

WATER PROFILES

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Sheet No.

C6.08

49 of 53 Sheets

EAST TOWN CROSSING PHASE 1
SEC. 26,35/ TWP. 20 N./ RGE. 4 E., W.M.

FIRE HYDRANT/FDC LOCATION/ACCESS APPROVED

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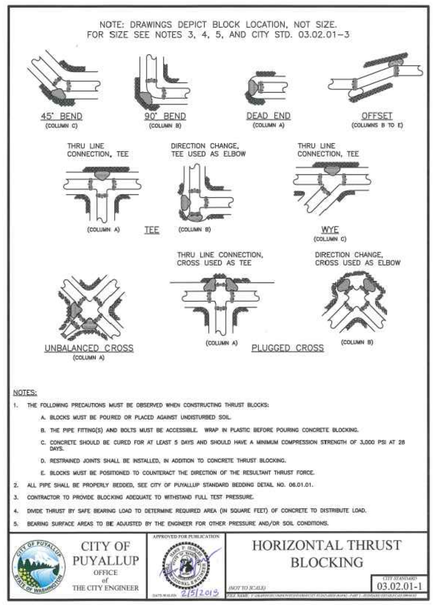

1 **HORIZONTAL THRUST BLOCKING**
NOT TO SCALE

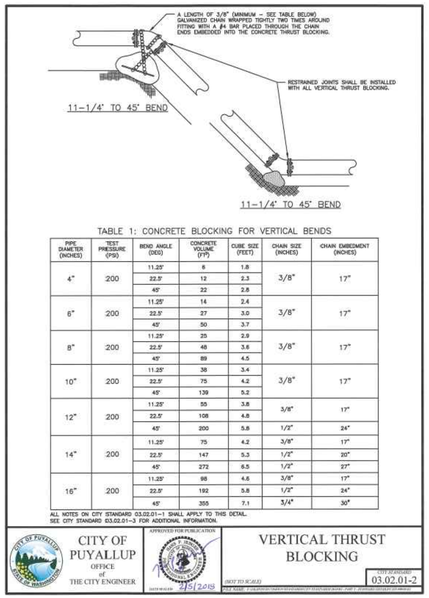

TABLE 1: CONCRETE BLOCKING FOR VERTICAL BENDS

PIPE DIAMETER (INCHES)	TEST PRESSURE (PSI)	BEND ANGLE (DEG)	CONCRETE VOLUME (FT³)	CUBE SIZE (FEET)	CHAIN SIZE (INCHES)	CHAIN EMBEDMENT (INCHES)
4"	200	11.25°	6	1.8	3/8"	17"
		22.5°	12	2.3		
		45°	22	2.8		
6"	200	11.25°	14	2.4	3/8"	17"
		22.5°	27	3.0		
		45°	50	3.7		
8"	200	11.25°	25	2.9	3/8"	17"
		22.5°	48	3.6		
		45°	89	4.5		
10"	200	11.25°	38	3.4	3/8"	17"
		22.5°	75	4.2		
		45°	139	5.2		
12"	200	11.25°	55	3.8	3/8"	17"
		22.5°	108	4.8		
		45°	200	5.8	1/2"	24"
14"	200	11.25°	75	4.2	3/8"	17"
		22.5°	147	5.3	1/2"	20"
		45°	272	6.5	1/2"	27"
16"	200	11.25°	98	4.6	3/8"	17"
		22.5°	192	5.8	1/2"	24"
		45°	355	7.1	3/4"	30"

ALL NOTES ON CITY STANDARD 03.02.01-1 SHALL APPLY TO THIS DETAIL.
SEE CITY STANDARD 03.02.01-3 FOR ADDITIONAL INFORMATION.

CITY OF PUYALLUP
OFFICE of THE CITY ENGINEER
APPROVED FOR PUBLICATION
2/5/2015
VERTICAL THRUST BLOCKING
NOT TO SCALE
CITY STANDARD 03.02.01-2

2 **VERTICAL THRUST BLOCKING**
NOT TO SCALE

TABLE 2: THRUST AT FITTINGS AT 200 PSI

SIZE	TEST PRESSURE (PSI)	THRUST FITTINGS AT 200 PSI				
		A	B	C	D	E
		TEE AND DEAD ENDS	90° BEND	45° BEND	22.5° BEND	11.25° BEND
4"	200	3,140	4,440	2,405	1,225	615
6"	200	7,070	9,995	5,410	2,760	1,385
8"	200	12,565	17,770	9,620	4,905	2,465
10"	200	19,635	27,770	15,030	7,660	3,850
12"	200	28,275	39,985	21,640	11,030	5,545
14"	200	38,485	54,425	29,455	15,015	7,545
16"	200	50,265	71,085	38,470	19,615	9,855

TABLE 3: BEARING VALUE OF SOIL

SOIL TYPE	SAFE BEARING LOAD LBS/SF
MUCK, PEAT, ETC.	0
SOFT CLAY/ALLUVIAL SOIL	1,000
SAND	2,000
SAND AND GRAVEL	3,000
SAND AND GRAVEL CEMENTED WITH CLAY	4,000
HARD SHALE	10,000

SEE CITY STANDARDS 03.02.01-1 AND 03.02.01-2 FOR ADDITIONAL INFORMATION.

NOTES:
① TO DETERMINE THRUST AT PRESSURES OTHER THAN PSI SHOWN, MULTIPLY THE THRUST OBTAINED IN TABLE 2 BY THE RATIO OF THE PRESSURE TO 200 PSI.
EXAMPLE:
THE THRUST ON A 12 INCH, 90° BEND AT 300 PSI.
39,985 X $\frac{300 \text{ PSI}}{200 \text{ PSI}}$ = 59,978 LBS
② TO DETERMINE THE BEARING AREA OF THE THRUST BLOCK IN SQUARE FEET (SF):
SEE TABLE 3, BEARING VALUE OF SOIL
EXAMPLE:
FOR SAND AND GRAVEL BEARING VALUE FROM TABLE 3 IS 3,000 LBS/SF
59,978 LBS ÷ 3000 LB/SF = 20 SF OF AREA
③ CONTRACTOR TO PROVIDE BLOCKING ADEQUATE TO WITHSTAND FULL TEST PRESSURE
④ AREAS SHALL BE ADJUSTED FOR OTHER PRESSURE CONDITIONS.
⑤ NO WATER MAIN SHALL DEAD END AGAINST A MAIN LINE VALVE. DEAD END WATER MAINS SHALL BE BLOCKED AGAINST A RESTRAINED MECHANICAL JOINT (M.J.) PLUG OR CAP.

CITY OF PUYALLUP
OFFICE of THE CITY ENGINEER
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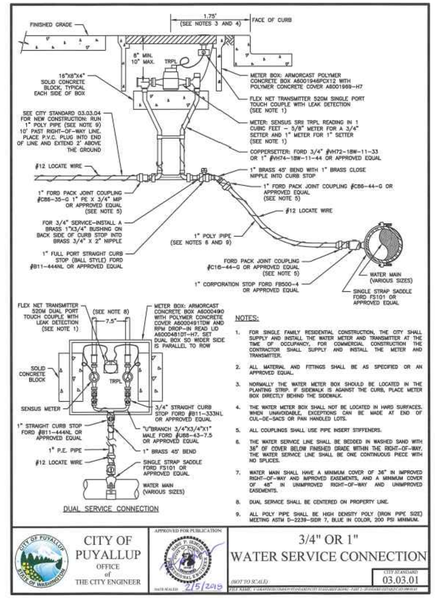
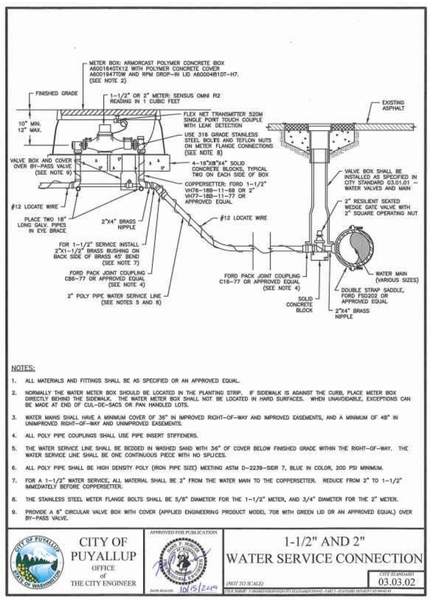
2/5/2015
THRUST BLOCKING TABLE
NOT TO SCALE
CITY STANDARD 03.02.01-3

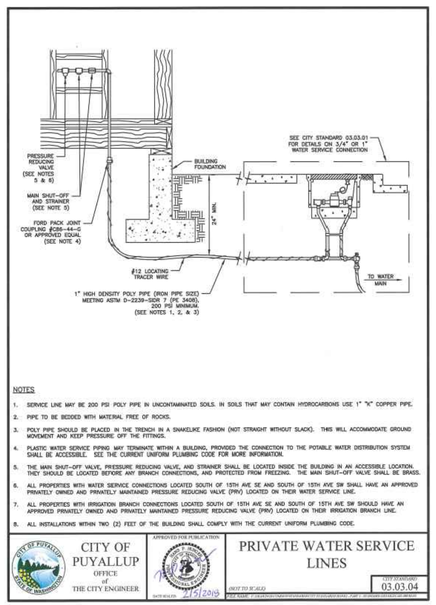
3 **THRUST BLOCKING TABLE**
NOT TO SCALE



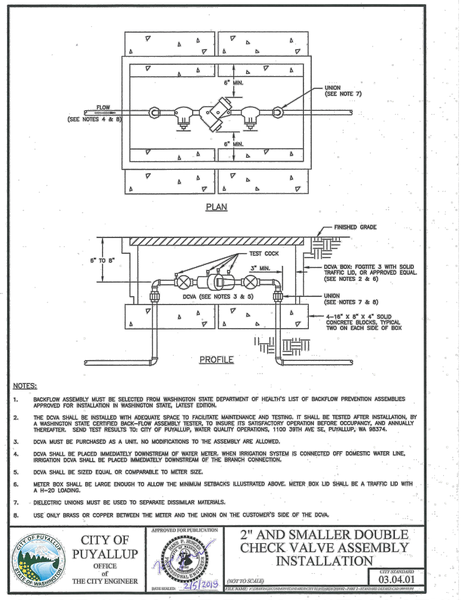
4 **0.75IN OR 1IN WATER SERVICE CONNECTION**
NOT TO SCALE



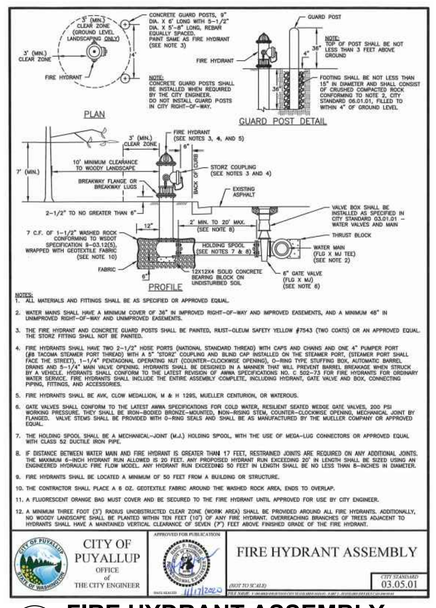
5 **1.5IN OR 2IN WATER SERVICE CONNECTION**
NOT TO SCALE



6 **PRIVATE WATER SERVICE LINES**
NOT TO SCALE



7 **2 IN AND SMALLER DCVA INSTALLATION**
NOT TO SCALE



8 **FIRE HYDRANT ASSEMBLY**
NOT TO SCALE

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2215 North 30th Street, Suite 300, Tacoma, WA 98403
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Project Title:

EAST TOWN CROSSING PHASE 1

Client:
ASH DEVELOPMENT

GREG HELLE

GREG.HELLE@ASHNW.COM

Project No.
2230752

Issue Set & Date:

PERMIT SUBMITTAL

02/20/2024

TODD CHRISTOPHER SWAIN
STATE OF WASHINGTON
REGISTERED
PROFESSIONAL ENGINEER
02/21/2024

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1 01/29/24 CITY COMMENTS

Revisions:

Sheet Title:

WATER NOTES AND DETAILS

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CW	SK / RS	JI

Sheet No.

C6.09

50 of 53 Sheets

EAST TOWN CROSSING PHASE 1

SEC. 26,35/ TWP. 20 N./ RGE. 4 E., W.M.

FIRE HYDRANT/FDC LOCATION/ACCESS APPROVED

BY _____
CITY OF PUYALLUP
FIRE CODE OFFICIAL

DATE _____

NOTE:
THIS APPROVAL IS VOID AFTER 1 YEAR FROM APPROVAL DATE.

THE CITY WILL NOT BE RESPONSIBLE FOR ERRORS AND/OR OMISSIONS ON THESE PLANS.

FIELD CONDITIONS MAY DICTATE CHANGES TO THESE PLANS AS DETERMINED BY THE FIRE CODE OFFICIAL.

APPROVED

BY _____
CITY OF PUYALLUP
DEVELOPMENT ENGINEERING

DATE _____

NOTE: THIS APPROVAL IS VOID AFTER 180 DAYS FROM APPROVAL DATE.
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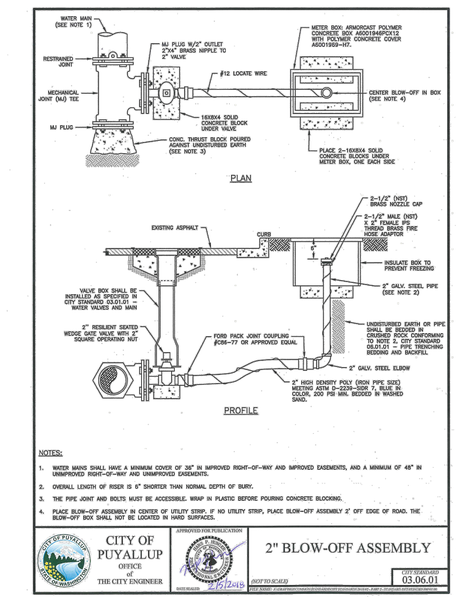
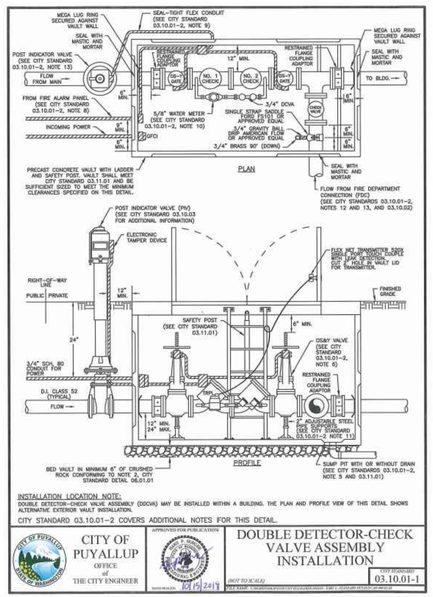


NOTES:

1. WATER MAINS SHALL HAVE A MINIMUM COVER OF 36" IN IMPROVED RIGHT-OF-WAY AND IMPROVED EASEMENTS, AND A MINIMUM OF 48" IN UNIMPROVED RIGHT-OF-WAY AND UNIMPROVED EASEMENTS.
2. OVERALL LENGTH OF RISER IS 6" SHORTER THAN NORMAL DEPTH OF BURY.
3. THE PIPE JOINT AND BOLTS MUST BE ACCESSIBLE. WRAP IN PLASTIC BEFORE POURING CONCRETE BLOCKING.
4. PLACE BLOW-OFF ASSEMBLY IN CENTER OF UTILITY STRIP. IF NO UTILITY STRIP, PLACE BLOW-OFF ASSEMBLY 2' OFF EDGE OF ROAD. THE BLOW-OFF BOX SHALL NOT BE LOCATED IN HARD SURFACES.

CITY OF PUYALLUP OFFICE of THE CITY ENGINEER | APPROVED FOR PUBLICATION 2/6/2015 | 2" BLOW-OFF ASSEMBLY | CITY STANDARD 03.06.01 | (NOT TO SCALE)

1 2 IN BLOW-OFF ASSEMBLY
NOT TO SCALE



INSTALLATION LOCATION NOTE:
DOUBLE DETECTOR-CHECK VALVE ASSEMBLY (DDCVA) MAY BE INSTALLED WITHIN A BUILDING. THE PLAN AND PROFILE VIEW OF THIS DETAIL SHOWS ALTERNATIVE EXTERIOR VAULT INSTALLATION.

CITY STANDARD 03.10.01-2 COVERS ADDITIONAL NOTES FOR THIS DETAIL.

CITY OF PUYALLUP OFFICE of THE CITY ENGINEER | APPROVED FOR PUBLICATION 2/5/2015 | DOUBLE DETECTOR-CHECK VALVE ASSEMBLY INSTALLATION | CITY STANDARD 03.10.01-1 | (NOT TO SCALE)

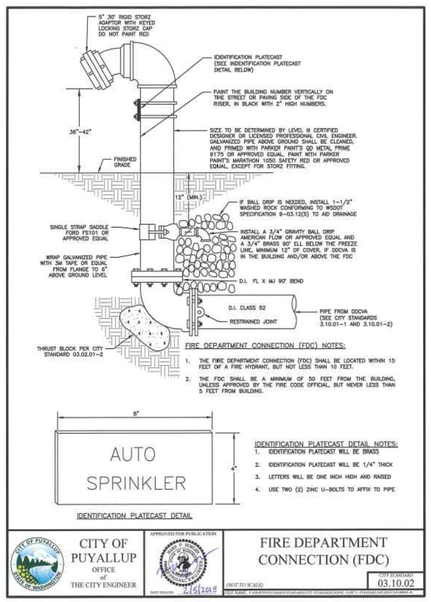
2 DOUBLE DETECTOR CHECK VALVE ASSEMBLY INSTALLATION
NOT TO SCALE

NOTES FOR: DOUBLE DETECTOR CHECK VALVE ASSEMBLY (DDCVA) INSTALLATION CITY STANDARD 03.10.01-1

1. BACKFLOW ASSEMBLY MUST BE SELECTED FROM WASHINGTON STATE DEPARTMENT OF HEALTH'S LIST OF BACKFLOW PREVENTION ASSEMBLIES APPROVED FOR INSTALLATION IN WASHINGTON STATE, LATEST EDITION.
2. THE DDCVA SHALL BE INSTALLED WITH ADEQUATE SPACE TO FACILITATE MAINTENANCE AND TESTING. IT SHALL BE TESTED AFTER INSTALLATION, BY A WASHINGTON STATE CERTIFIED BACK-FLOW ASSEMBLY TESTER, TO INSURE ITS SATISFACTORY OPERATION BEFORE OCCUPANCY, AND ANNUALLY THEREAFTER. SEND TEST RESULTS TO: CITY OF PUYALLUP, WATER QUALITY OPERATIONS, 1100 39TH AVE SE, PUYALLUP, WA 98374.
3. DDCVA MUST BE PURCHASED AS A UNIT. NO MODIFICATIONS TO THE ASSEMBLY ARE ALLOWED.
4. DDCVA IS ALLOWED TO BE LOCATED WITHIN A BUILDING AS APPROVED BY THE FIRE CODE OFFICIAL. WHEN THE DDCVA IS LOCATED WITHIN A BUILDING, THE FIRE DEPARTMENT CONNECTION (FDC) BALL DRIP SHALL DRAIN TO THE NEAREST APPROVED ON-SITE STORM DRAINAGE STRUCTURE.
5. IN A VAULT INSTALLATION, IF VAULT CANNOT BE DRAINED TO DAYLIGHT, A 1/4 HP SUMP PUMP SHALL BE INSTALLED IN THE SUMP PIT OF THE VAULT. IT SHALL BE WIRED PER WASHINGTON STATE ELECTRICAL CODE, AND INSPECTED BY A STATE ELECTRICAL INSPECTOR. THE DISCHARGE PIPE SHALL BE CONNECTED TO THE NEAREST APPROVED ON-SITE STORM DRAINAGE STRUCTURE.
6. DDCVA OUTSIDE STEM AND YOKE (OS&Y) GATE VALVES, AND THE POST INDICATOR VALVE (PIV), SHALL HAVE SUPERVISED TAMPER SWITCHES.
7. ALL ELECTRICAL SHALL BE INSPECTED BY A WASHINGTON STATE ELECTRICAL INSPECTOR.
8. IN A VAULT INSTALLATION, RUN TWO 3/4" SCHEDULE 80 P.V.C. CONDUITS TO THE VAULT. ONE WILL BE USED FOR A GFCI PROTECTED OUTLET, AND ONE WILL BE FOR LOW VOLTAGE COMING FROM THE FIRE ALARM PANEL. INSTALL AN APPLETON FSCA OR FDCA CAST DEVICE BOX OR APPROVED EQUAL ON THE VAULT WALL AT THE CONDUIT PENETRATION.
9. IN A VAULT INSTALLATION, RUN LOW VOLTAGE WIRE INSIDE VAULT AND TO PIV THROUGH SEAL-TIGHT FLEX CONDUIT. CONDUIT SHALL BE SECURELY FASTENED PERPENDICULAR OR HORIZONTALLY TO THE WALLS OF THE VAULT.
10. WATER METER SHALL BE A SENSUS SR9 TYPE, READING IN 1 CUBIC FEET.
11. PIPE SUPPORTS SHALL BE RUST-PROTECTED WITH ALUMINUM PAINT.
12. THE FDC SHALL BE LOCATED WITHIN 15 FEET OF A FIRE HYDRANT, BUT NOT LESS THAN 10 FEET.
13. THE FDC AND PIV SHALL BE A MINIMUM OF 50 FEET FROM A BUILDING, UNLESS APPROVED BY THE CITY OF PUYALLUP FIRE CODE OFFICIAL, BUT NEVER LESS THAN 5 FEET FROM BUILDING.
14. A DDCVA INSTALLED MORE THAN 5 FEET ABOVE THE FLOOR LEVEL MUST HAVE A PLATFORM UNDER IT FOR THE TESTER OR MAINTENANCE PERSON TO STAND ON. THE PLATFORM MUST BE OSHA APPROVED AND MEET ALL APPLICABLE SAFETY STANDARDS AND CODES.

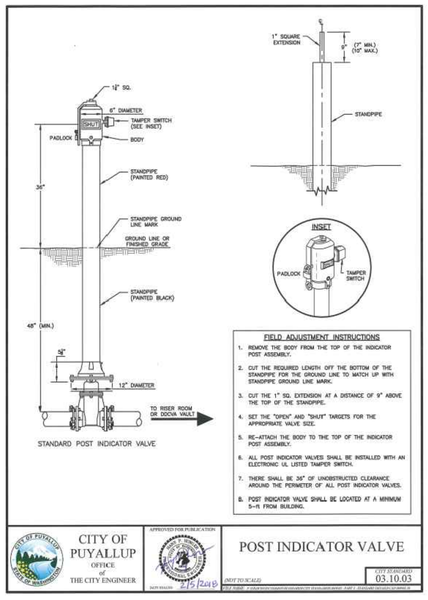
CITY OF PUYALLUP OFFICE of THE CITY ENGINEER | APPROVED FOR PUBLICATION 2/6/2015 | DOUBLE DETECTOR-CHECK VALVE ASSEMBLY INSTALLATION (NOTES) | CITY STANDARD 03.10.01-2 | (NOT TO SCALE)

3 DOUBLE DETECTOR CHECK VALVE ASSEMBLY INSTALLATION (NOTES)
NOT TO SCALE



CITY OF PUYALLUP OFFICE of THE CITY ENGINEER | APPROVED FOR PUBLICATION 2/5/2015 | FIRE DEPARTMENT CONNECTION (FDC) | CITY STANDARD 03.10.02 | (NOT TO SCALE)

4 FIRE DEPARTMENT CONNECTION (FDC)
NOT TO SCALE



CITY OF PUYALLUP OFFICE of THE CITY ENGINEER | APPROVED FOR PUBLICATION 2/5/2015 | POST INDICATOR VALVE | CITY STANDARD 03.10.03 | (NOT TO SCALE)

5 POST INDICATOR VALVE
NOT TO SCALE

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Project Title:

EAST TOWN CROSSING PHASE 1

Client:
ASH DEVELOPMENT

GREG HELLE

GREG.HELLE@ASHNW.COM

Project No.
2230752

Issue Set & Date:

PERMIT SUBMITTAL
02/20/2024

TODD CHRISTOPHER SWINT — STATE OF WASHINGTON — 24416 — REGISTERED PROFESSIONAL ENGINEER
02/21/2024

Revisions:
1 01/29/24 CITY COMMENTS

Sheet Title:

WATER NOTES AND DETAILS

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DATE: February 21, 2024 FILENAME: O:\2023\2230752\10_CIV\CAD\2230752-SH-WATR.dwg

EAST TOWN CROSSING PHASE 1
SEC. 26,35/ TWP. 20 N./ RGE. 4 E., W.M.

FIRE HYDRANT/FDC LOCATION/ACCESS APPROVED

BY ____________
CITY OF PUYALLUP FIRE CODE OFFICIAL

DATE ____________

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CITY OF PUYALLUP DEVELOPMENT ENGINEERING

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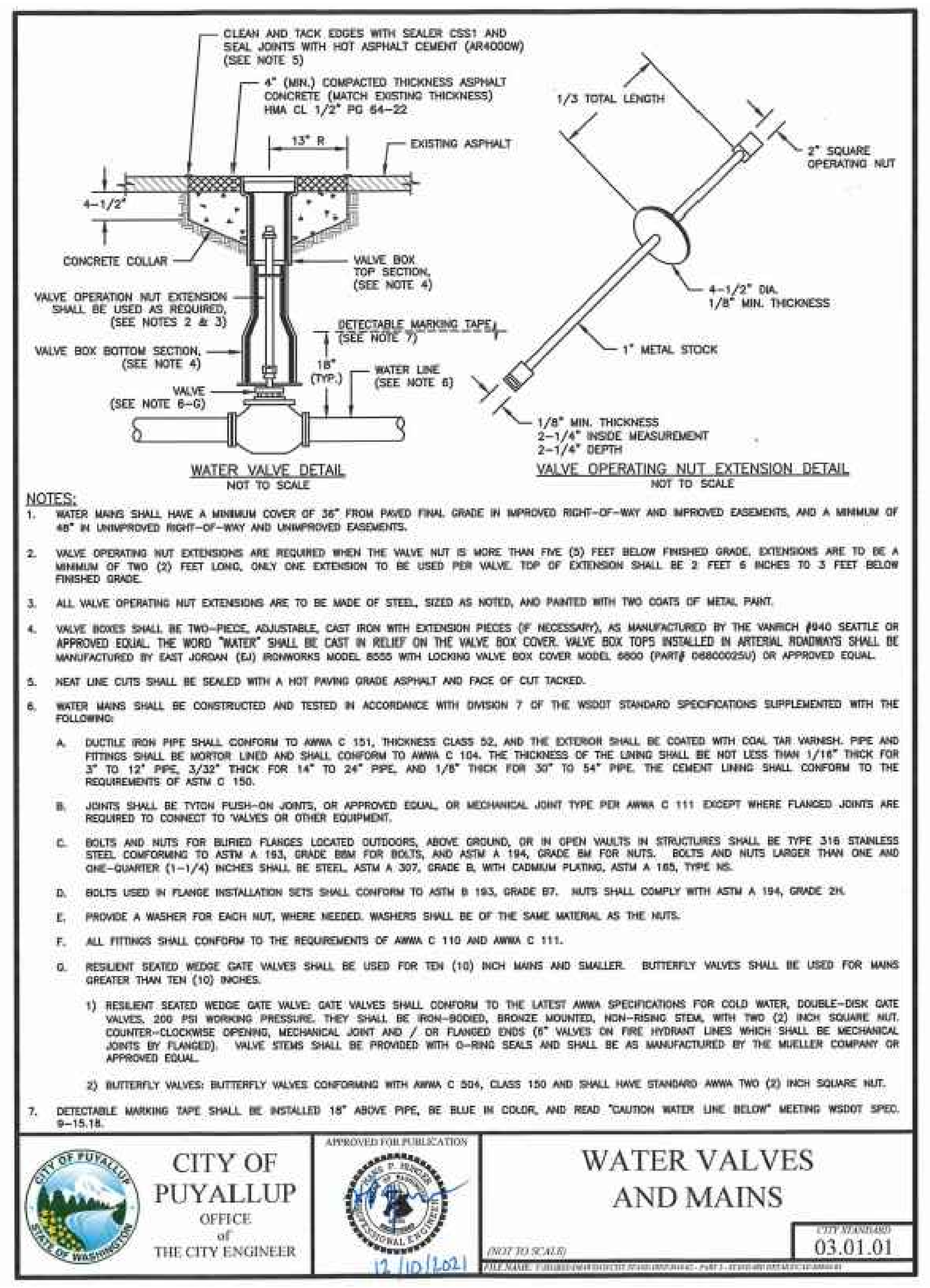
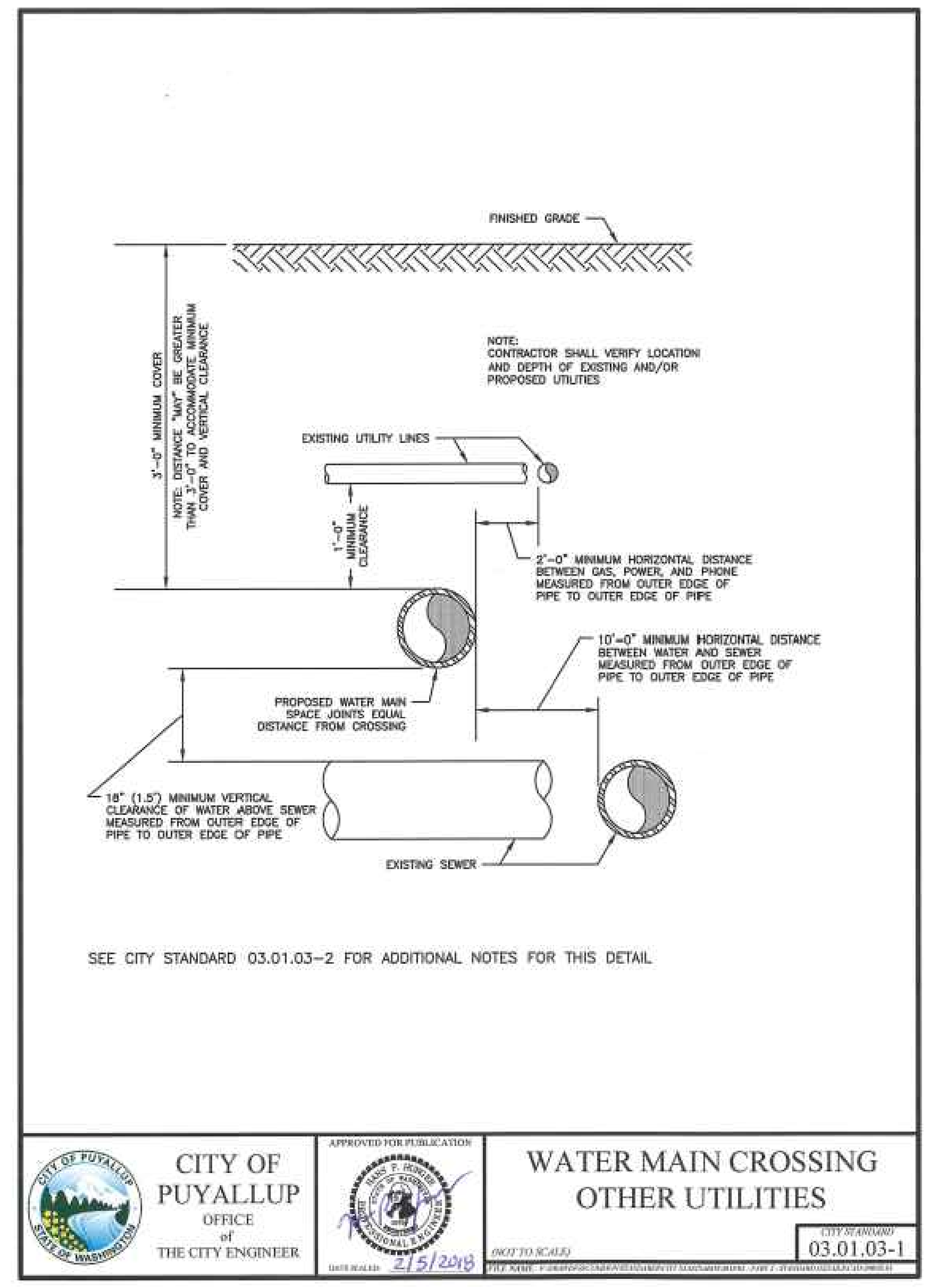
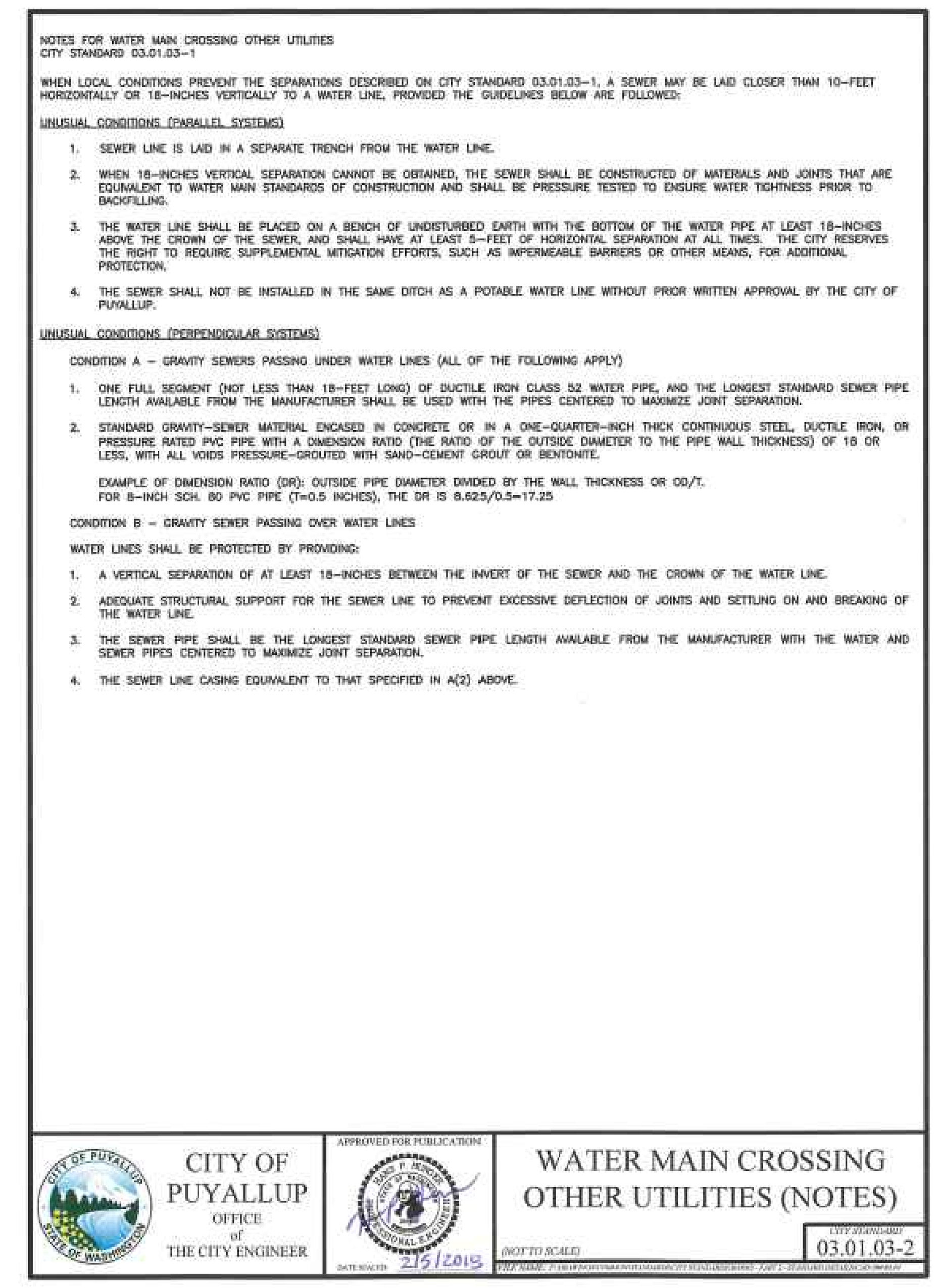


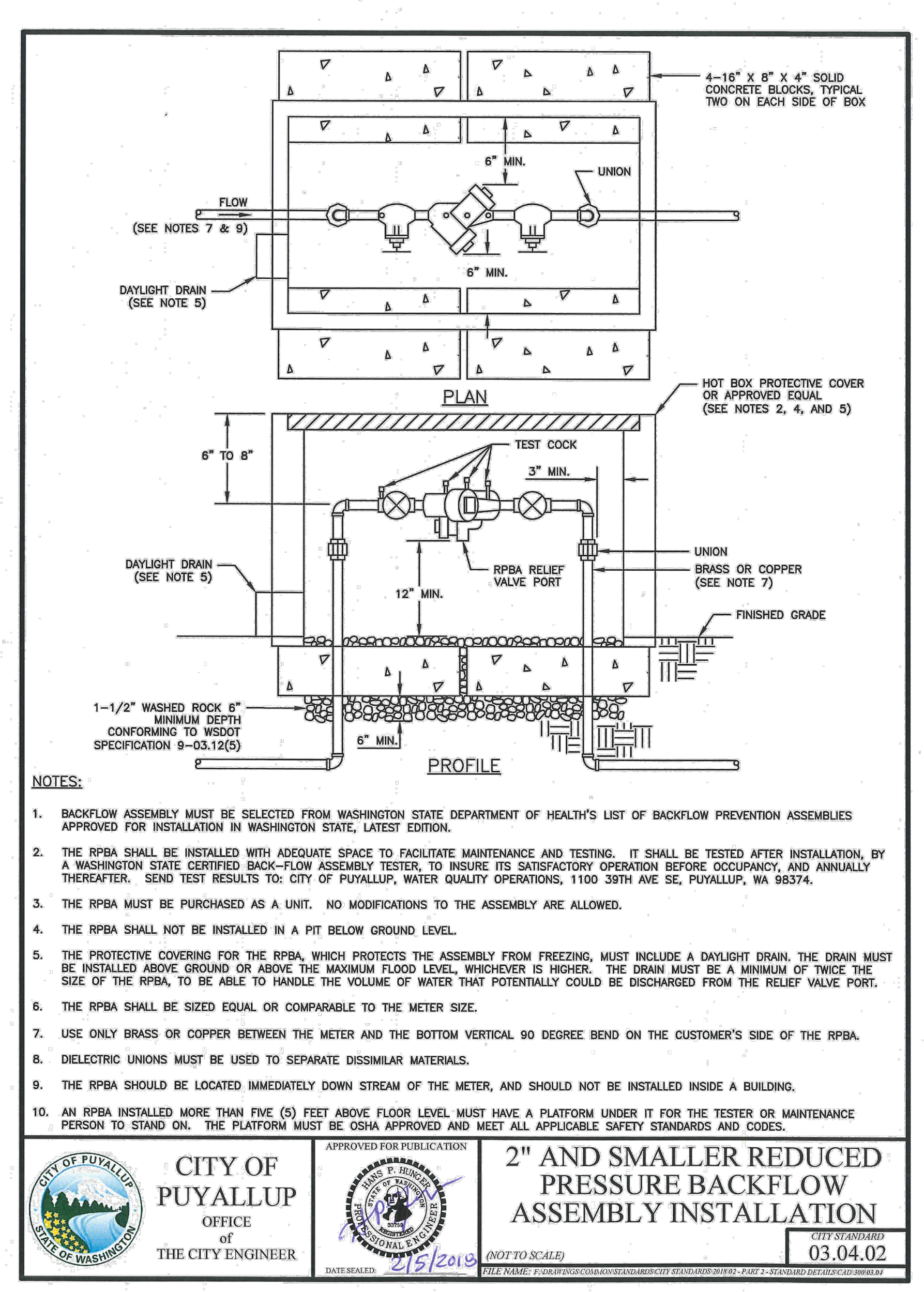
1 **WATER VALVES AND MAINS**
NOT TO SCALE



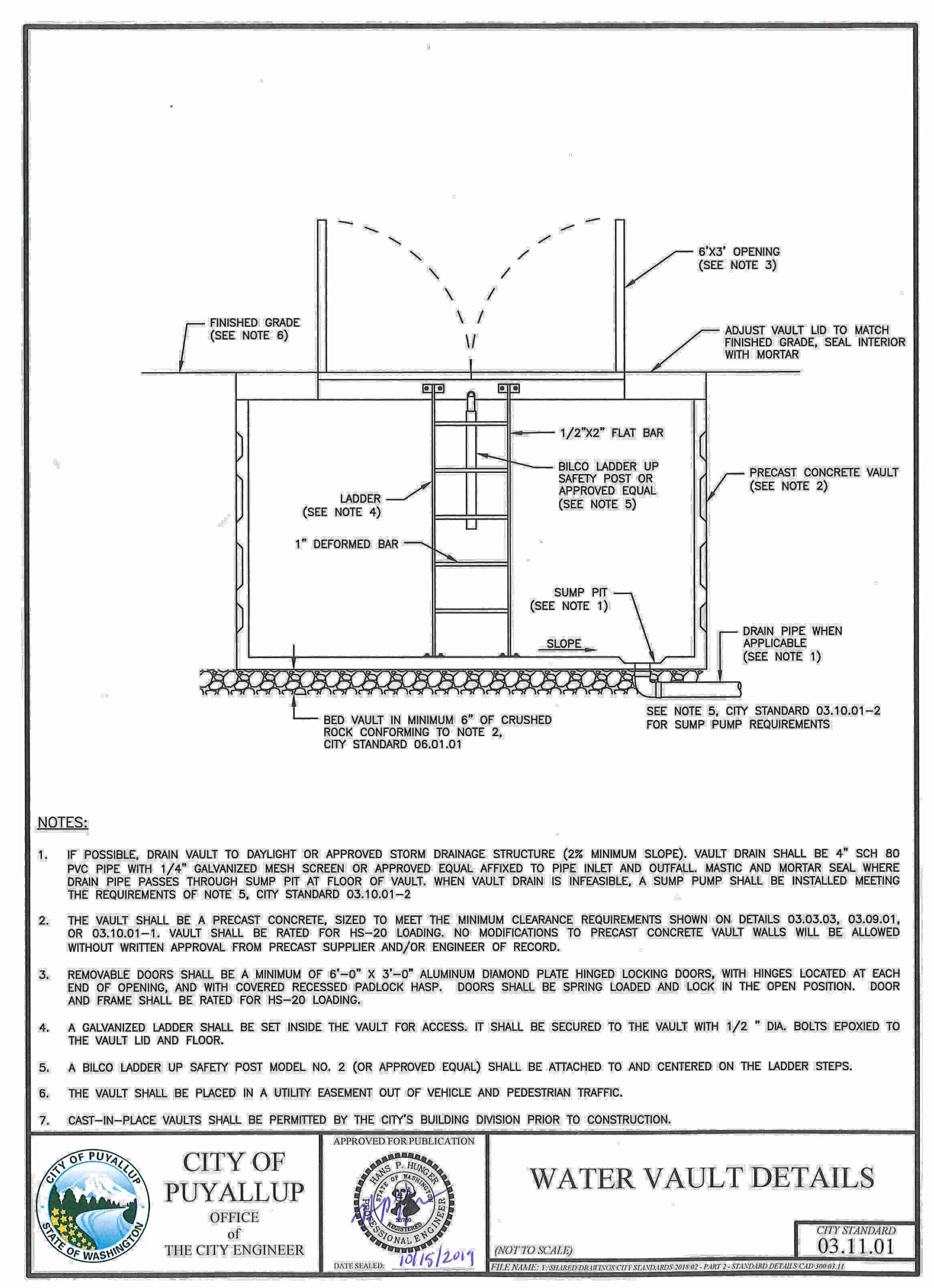
2 **WATER MAIN CROSSING OTHER UTILITIES**
NOT TO SCALE



3 **WATER MAIN CROSSING OTHER UTILITIES (NOTES)**
NOT TO SCALE



4 **2IN AND SMALLER REDUCED PRESSURE BACKFLOW ASSEMBLY INSTALLATION**
NOT TO SCALE



5 **WATER VAULT DETAILS**
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Client:
ASH DEVELOPMENT

GREG HELLE

GREG.HELLE@ASHNW.COM

Project No.
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02/20/2024

TODD CHRISTOPHER SAWIN
STATE OF WASHINGTON
46416
REGISTERED PROFESSIONAL ENGINEER
02/21/2024

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EAST TOWN CROSSING PHASE 1

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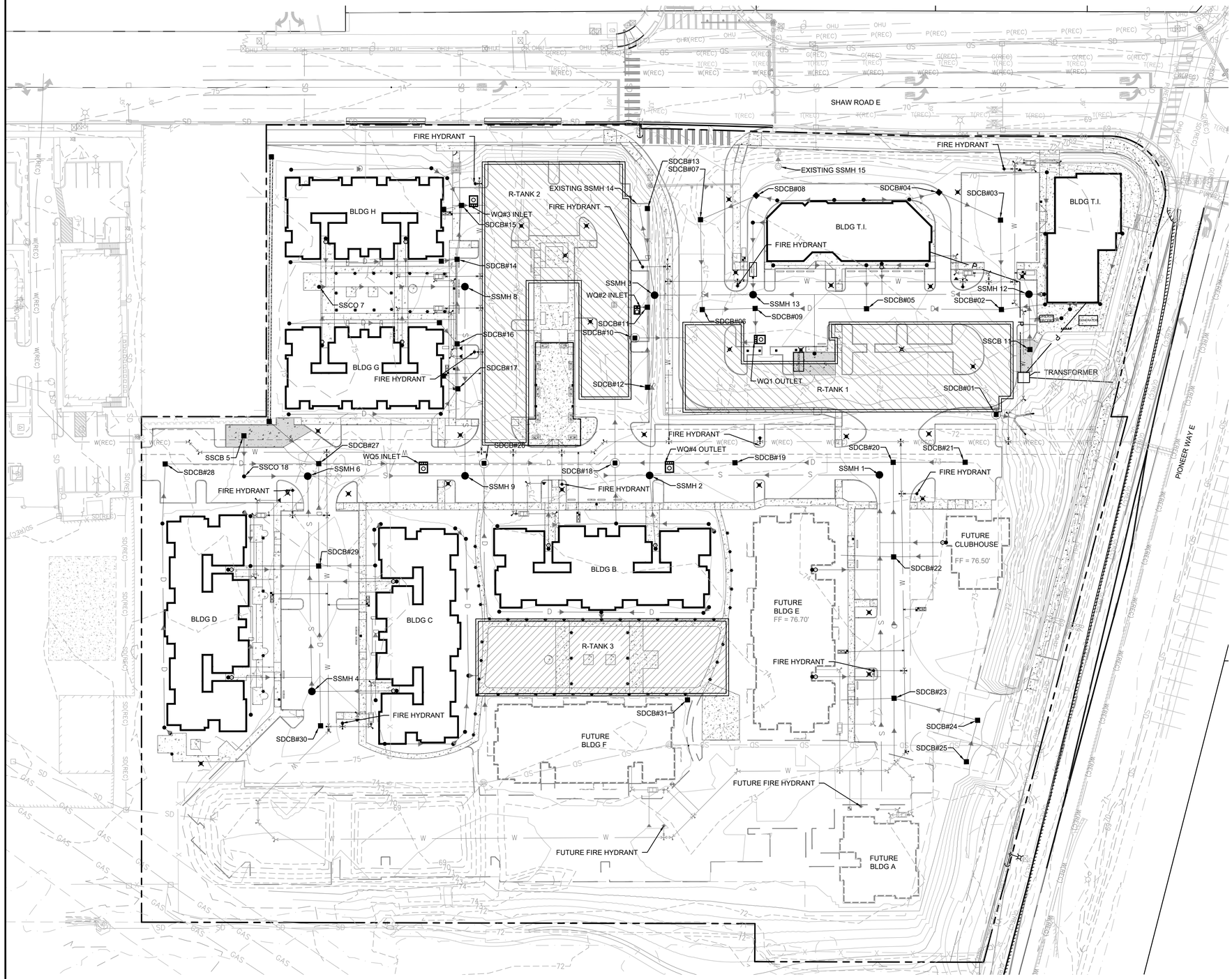

GRAPHIC SCALE

0 20 40 80

1" = 40 FEET

APPROVED

BY _____
CITY OF PUYALLUP
DEVELOPMENT ENGINEERING

DATE _____

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ASH DEVELOPMENT

GREG HELLE

GREG.HELLE@ASHNW.COM

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STATE OF WASHINGTON
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02/21/2024

1 01/29/24 CITY COMMENTS

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OVERALL UTILITY PLAN

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