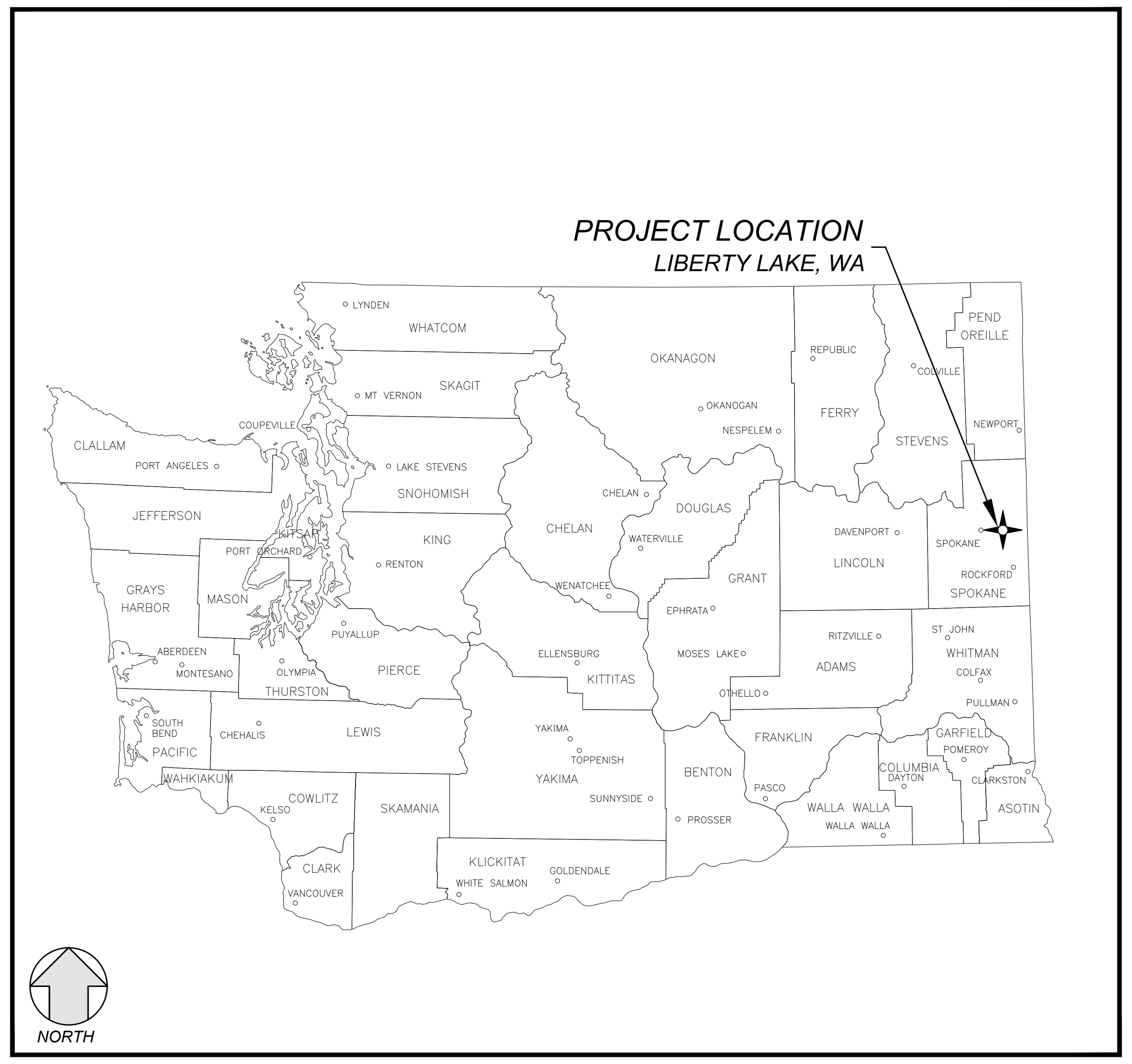
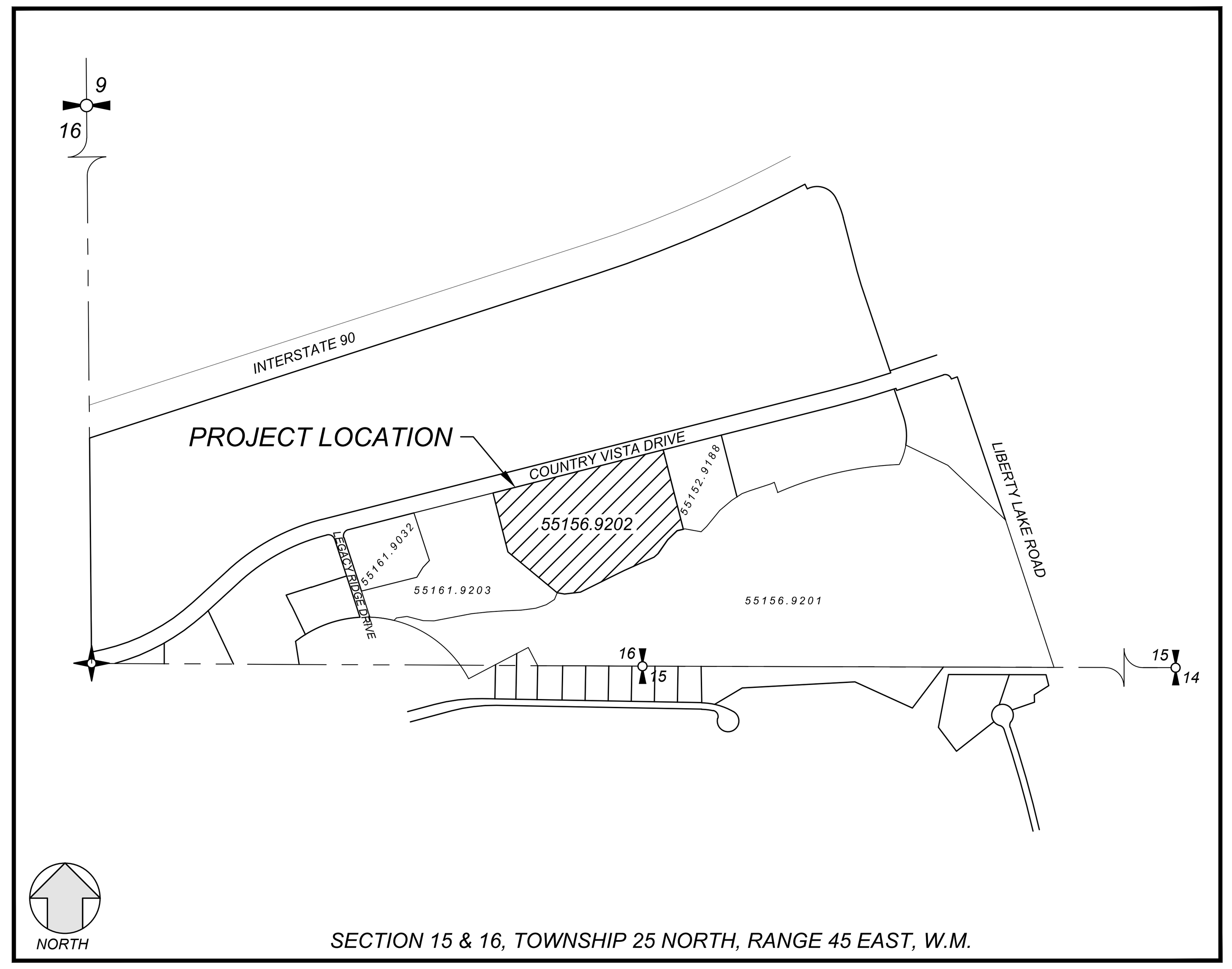
LEGACY VILLAS

PHASE I SITE DEVELOPMENT PLANS

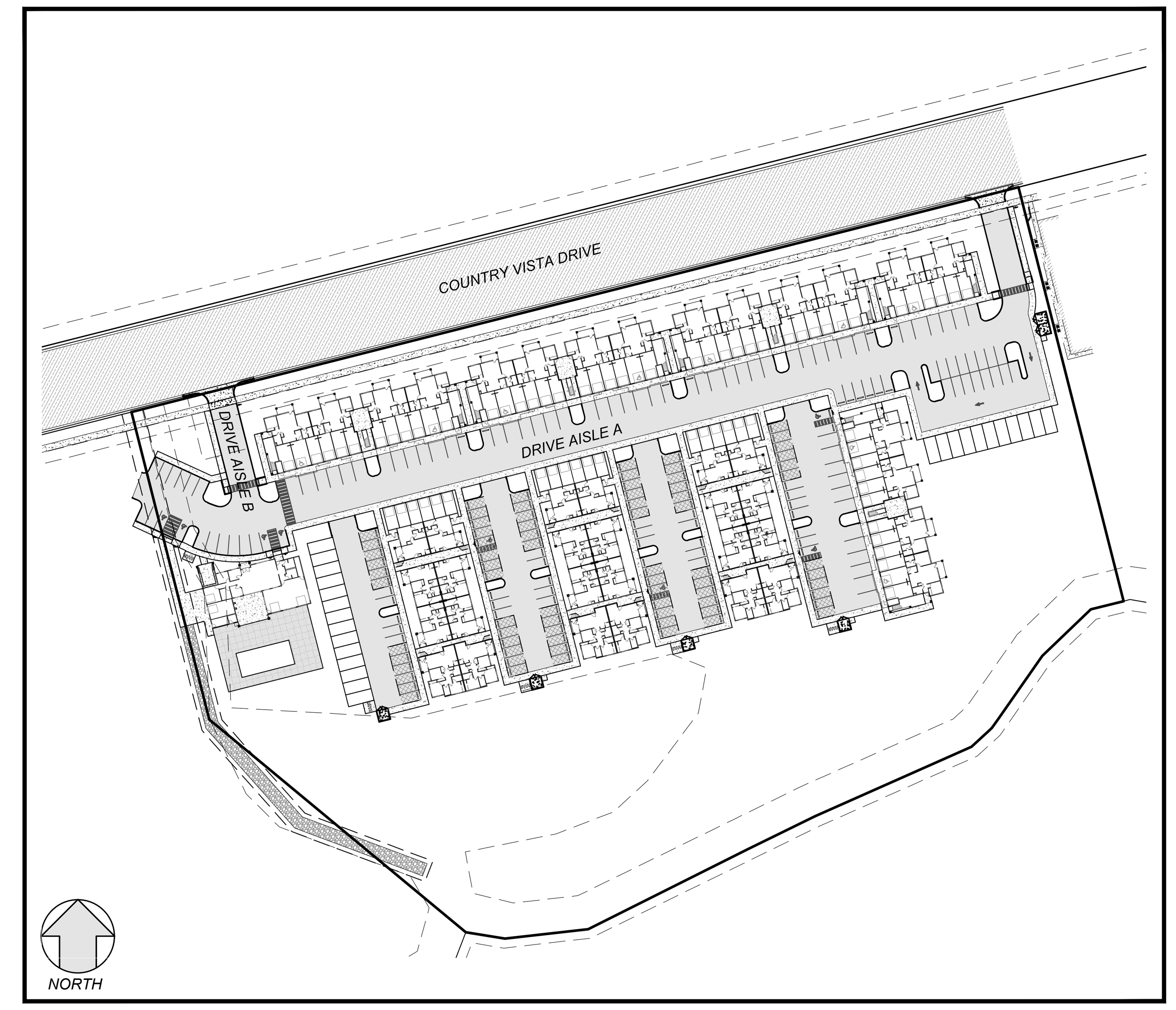
CITY OF LIBERTY LAKE, SPOKANE COUNTY, WASHINGTON



VICINITY MAP
NTS



PROJECT LOCATION
1" = 600'



PROJECT SITE
1" = 120'

PROJECT DEVELOPER

LEGACY VILLAS, LLC
P.O. BOX 949
HAYDEN, IDAHO 83835
PHONE: (208) 765-5059

CIVIL ENGINEER

LAKE CITY ENGINEERING, INC.
3909 N. SCHREIBER WAY, SUITE 4
COEUR D'ALENE, IDAHO 83815
PHONE/FAX: (208) 676-0230

ARCHITECT

WYATT ARCHITECTS
P.O. BOX 141713
SPOKANE VALLEY, WASHINGTON 99214
PHONE: (509) 928-1860

LANDSCAPE ARCHITECT

WHIPPLE CONSULTING ENGINEERS, INC.
2528 NORTH SULLIVAN ROAD
SPOKANE VALLEY, WASHINGTON 99216
PHONE: (509) 893-2617

PROJECT SITE

PARCEL NO. 55156.9202
AREA: 9.30 acres

PARCEL C-10 (AFN#6481512)
LIBERTY LAKE CORPORATE PARK BSP-50-96
17TH AMENDMENT

A PORTION OF THE SOUTHWEST QUARTER OF THE NORTHWEST QUARTER OF SECTION 15 AND A PORTION OF THE SOUTHEAST QUARTER OF THE NORTHEAST QUARTER OF SECTION 16 , TOWNSHIP 25 NORTH, RANGE 45 EAST, W. M., CITY OF LIBERTY LAKE, SPOKANE COUNTY, WASHINGTON

SEWER PURVEYOR

LIBERTY LAKE SEWER & WATER DISTRICT
22510 E. MISSION AVENUE
LIBERTY LAKE, WA 99019
PHONE: (509) 922-5443

WATER PURVEYOR

LIBERTY LAKE SEWER & WATER DISTRICT
22510 E. MISSION AVENUE
LIBERTY LAKE, WA 99019
PHONE: (509) 922-5443

FIRE DISTRICT

SPOKANE VALLEY FIRE DEPARTMENT
FIRE DISTRICT 1, STATION 3
2218 N. HARVARD ROAD
LIBERTY LAKE, WA 99019

UTILITY CONTACT LIST

AVISTA (GAS & ELECTRIC): (509) 495-8610

COMCAST (CABLE & COMMUNICATIONS): (509) 370-3789

CENTURY LINK (COMMUNICATIONS): (509) 623-0302

INDEX OF SHEETS

VERTICAL DATUM

WSDOT BRASS DISK SET IN A CONCRETE MONUMENT NEAR R/W FENCE.
DESIGNATION: GP32090-48
MONUMENT ID: 2313

ELEVATION: 2055.34 (NAVD 88)

LIBERTY LAKE SEWER & WATER DISTRICT APPROVAL:

DATE

CITY OF LIBERTY LAKE APPROVAL:

DATE

UNDERGROUND SERVICE ALERT
ONE-CALL NUMBER
811
CALL TWO BUSINESS DAYS BEFORE YOU DIG
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NO.	DESCRIPTION	INITIAL	DATE

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LAKE CITY ENGINEERING
3909 N. SCHREIBER WAY, STE. 4
COEUR D'ALENE, IDAHO 83815
PHONE: 208-676-0230

LEGACY VILLAS

TITLE SHEET
LIBERTY LAKE, WASHINGTON

ONE INCH
AT FULL SIZE IF NOT ONE INCH SCALE ACCORDINGLY

DESIGNED BY:	DCD
DRAFTED BY:	DLH
DATE:	6/20/2016
JOB NO:	LCE 15-072

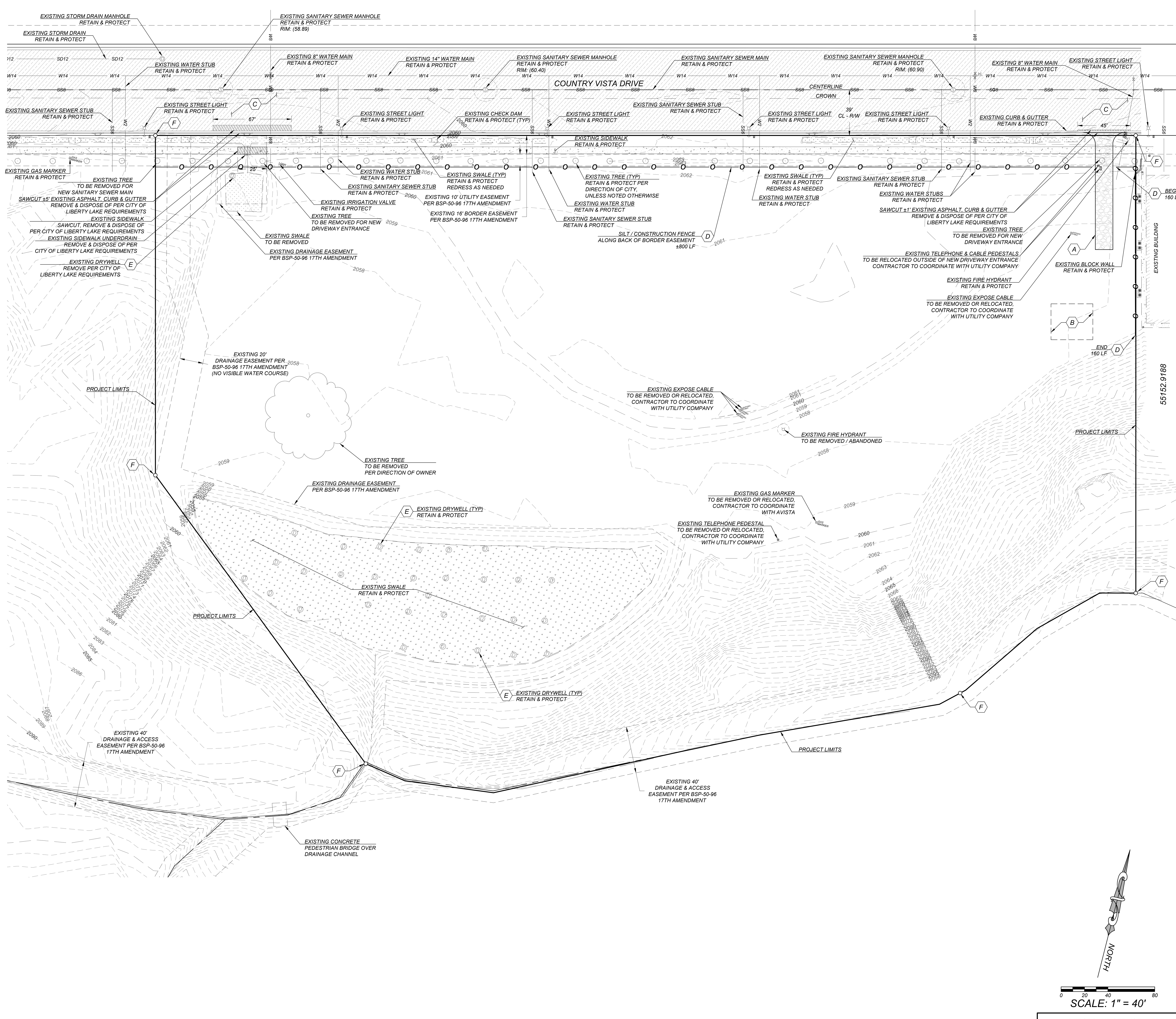
1 / 14

CONSTRUCTION KEY NOTES

- (A) CONTRACTOR SHALL CONSTRUCT AND MAINTAIN A STABILIZED CONSTRUCTION ENTRANCE PER BMP C105 OF THE STORMWATER MANAGEMENT MANUAL FOR EASTERN WASHINGTON (LATEST EDITION).
- (B) CONTRACTOR TO CONSTRUCT AND MAINTAIN A CONSTRUCTION STAGING AREA IN THIS LOCATION. COORDINATE LOCATION WITH OWNER.
- (C) CONTRACTOR TO KEEP EXISTING ROAD CLEAR AND FREE FROM DIRT, MUD AND OTHER DEBRIS. ROAD SHALL BE SWEPT AND WATERED AS REQUIRED.
- (D) INSTALL SILT FENCE PER BMP C233 OF THE STORMWATER MANAGEMENT MANUAL FOR EASTERN WASHINGTON (LATEST EDITION).
- (E) INSTALL INLET PROTECTION PER BMP C220 OF THE STORMWATER MANAGEMENT MANUAL FOR EASTERN WASHINGTON (LATEST EDITION).
- (F) EXISTING SURVEY MONUMENT. RETAIN AND PROTECT.

GENERAL PROJECT & ESC NOTES

1. UNLESS SPECIFIED OTHERWISE, THE CONTRACTOR SHALL FOLLOW THE CONSTRUCTION SCHEDULING AND SEQUENCING GUIDELINES PER THE REQUIREMENTS OF THE SPOKANE REGIONAL STORMWATER MANUAL.
2. CONTRACTOR SHALL MAKE NECESSARY PROVISIONS TO PRESERVE THE EXISTING VEGETATION ALONG THE SPECIFIED PROJECT LIMITS PER REQUIREMENTS OF THE SPOKANE REGIONAL STORMWATER MANUAL.
3. CONTRACTOR SHALL CONFINE CLEARING LIMITS TO WITHIN THE SPECIFIED PROJECT LIMITS PER REQUIREMENTS OF THE SPOKANE REGIONAL STORMWATER MANUAL.
4. CONTRACTOR SHALL IMPLEMENT AND MAINTAIN A DUST CONTROL PROGRAM ON A DAILY BASIS, INCLUDING WEEKEND AND HOLIDAYS PER THE REQUIREMENTS OF THE SPOKANE REGIONAL STORMWATER MANUAL.
5. UNLESS OTHERWISE SPECIFIED, THE CONTRACTOR SHALL MAKE NECESSARY PROVISIONS TO COVER ALL ONSITE MATERIALS AND EQUIPMENT PER THE REQUIREMENTS OF THE SPOKANE REGIONAL STORMWATER MANUAL.
6. NO WASHOUT FACILITIES, INCLUDING CONCRETE MATERIAL WASHOUT, SHOWN WITHIN THE SPECIFIED PROJECT LIMITS. THE CONTRACTOR SHALL DIRECT ALL WASHOUT ACTIVITIES TO BE CONDUCTED WITHIN DESIGNATED WASHOUT AREAS TO BE APPROVED BY THE OWNER. WASHOUT WILL NOT BE ALLOWED WITHIN A PUBLIC RIGHT-OF-WAY.
7. BASED ON THE GRADING AND BMP'S SHOWN HEREON, A SWPPP IS NOT REQUIRED AS STORMWATER GENERATED FROM THIS PROJECT SHALL NOT REACH ANY SURFACE WATERS OF THE UNITED STATES.
8. AT COMPLETION OF THE PROJECT AND PER THE DIRECTION OF THE ENGINEER OF RECORD, THE CONTRACTOR SHALL REMOVE AND DISPOSE OF TEMPORARY EROSION CONTROL.
9. THE CONTOURS SHOWN HEREON ARE BASED ON A FIELD TOPOGRAPHIC SURVEY PERFORMED BY LAKE CITY ENGINEERING. CONTRACTOR IS REQUIRED TO VERIFY EXISTING CONTOURS AT HIS OWN EXPENSE. CONTOURS ONLY SHOWN FOR THE LOTS TO BE DEVELOPED AS A PART OF THIS PROJECT.
10. THE FOLLOWING BMPS FROM THE STORMWATER MANAGEMENT MANUAL FOR EASTERN WASHINGTON:
    - BMP C101: PRESERVING NATURAL VEGETATION PURPOSE
    - BMP C105: STABILIZED CONSTRUCTION ENTRANCE
    - BMP C140: DUST CONTROL
    - BMP C151: CONCRETE HANDLING
    - BMP C152: SAWCUTTING AND SURFACING POLLUTION PREVENTION
    - BMP C220: INLET PROTECTION
    - BMP C233: SILT FENCE
11. THE BMPS PROPOSED HEREON ARE DESIGNED TO PREVENT AND/OR MITIGATE THE POTENTIAL FOR STORMWATER TO BE CONVEYED TO WATERWAYS OF THE UNITED STATES. THE CONTRACTOR IS REQUIRED TO FILE A NOTICE OF INTENT WITH THE EPA AND PROCESS A CONSTRUCTION GENERAL PERMIT. THE CONTRACTOR SHALL POST APPROVED SWPPP, IF REQUIRED, AND NOI DOCUMENTS ONSITE IN A PUBLICLY VISIBLE LOCATION.



UNDERGROUND SERVICE ALERT
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3909 N. SCHREIBER WAY, STE. 4
COEUR D'ALENE, IDAHO 83815
PHONE: 208-676-0230

LEGACY VILLAS

EXISTING CONDITIONS AND ESC PLAN
LIBERTY LAKE, WASHINGTON

ONE INCH
AT FULL SIZE IF NOT ONE INCH SCALE ACCORDINGLY

DESIGNED BY:	DCD
DRAFTED BY:	DLH
DATE:	6/20/2016
JOB NO:	LCE 15-072

2

14

GRADING AND GEOTECHNICAL NOTES

1. THE TOPOGRAPHY SHOWN HEREON IS SPECIFICALLY INTENDED FOR THE MASS GRADING SHOWN HEREON.
2. ENGINEER OF RECORD MAKES NO GUARANTEE OF TOPOGRAPHY SHOWN HEREON. CONTRACTOR TO FIELD VERIFY AT HIS EXPENSE ALL TOPOGRAPHY PRIOR TO THE START OF ANY WORK HEREON. CONTRACTOR SHOULD IMMEDIATELY NOTIFY ENGINEER OF RECORD IF ANY DISCREPANCIES ARE FOUND.
3. IN THE EVENT THAT ANY UNFORESEEN CONDITIONS NOT COVERED BY THESE NOTES ARE ENCOUNTERED DURING GRADING OPERATIONS, THE OWNER/ENGINEER SHALL BE IMMEDIATELY NOTIFIED IN ORDER TO PROVIDE GUIDANCE TO CONTRACTOR.
4. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PERFORM ALL NECESSARY CUTS AND FILLS WITHIN THE LIMITS OF THIS PROJECT AND THE RELATED OFF-SITE WORK, SO AS TO GENERATE THE DESIRED SUBGRADE, FINISH GRADES AND SLOPES SHOWN.
5. THE CONTRACTOR IS WARNED THAT AN EARTHWORK BALANCE WAS NOT NECESSARILY THE INTENT OF THIS PROJECT. ANY ADDITIONAL MATERIAL REQUIRED OR LEFTOVER MATERIAL FOLLOWING EARTHWORK OPERATIONS BECOMES THE RESPONSIBILITY OF THE CONTRACTOR. CONTRACTOR IS REQUIRED TO PERFORM HIS (THEIR) OWN EARTHWORK CALCULATIONS PRIOR TO SUBMITTING A BID PROPOSAL TO DEVELOPER.
6. CONTRACTOR SHALL GRADE TO THE LINES AND ELEVATIONS SHOWN ON THE PLANS WITHIN THE FOLLOWING HORIZONTAL AND VERTICAL TOLERANCES AND DEGREES OF COMPACTION, IN THE AREAS INDICATED:

	HORIZONTAL	VERTICAL
A. PAVEMENT AREA SUBGRADE	0.1'+	+0.1' TO -0.1'
B. ENGINEERED FILL	0.5'+	+0.2' TO -0.2'

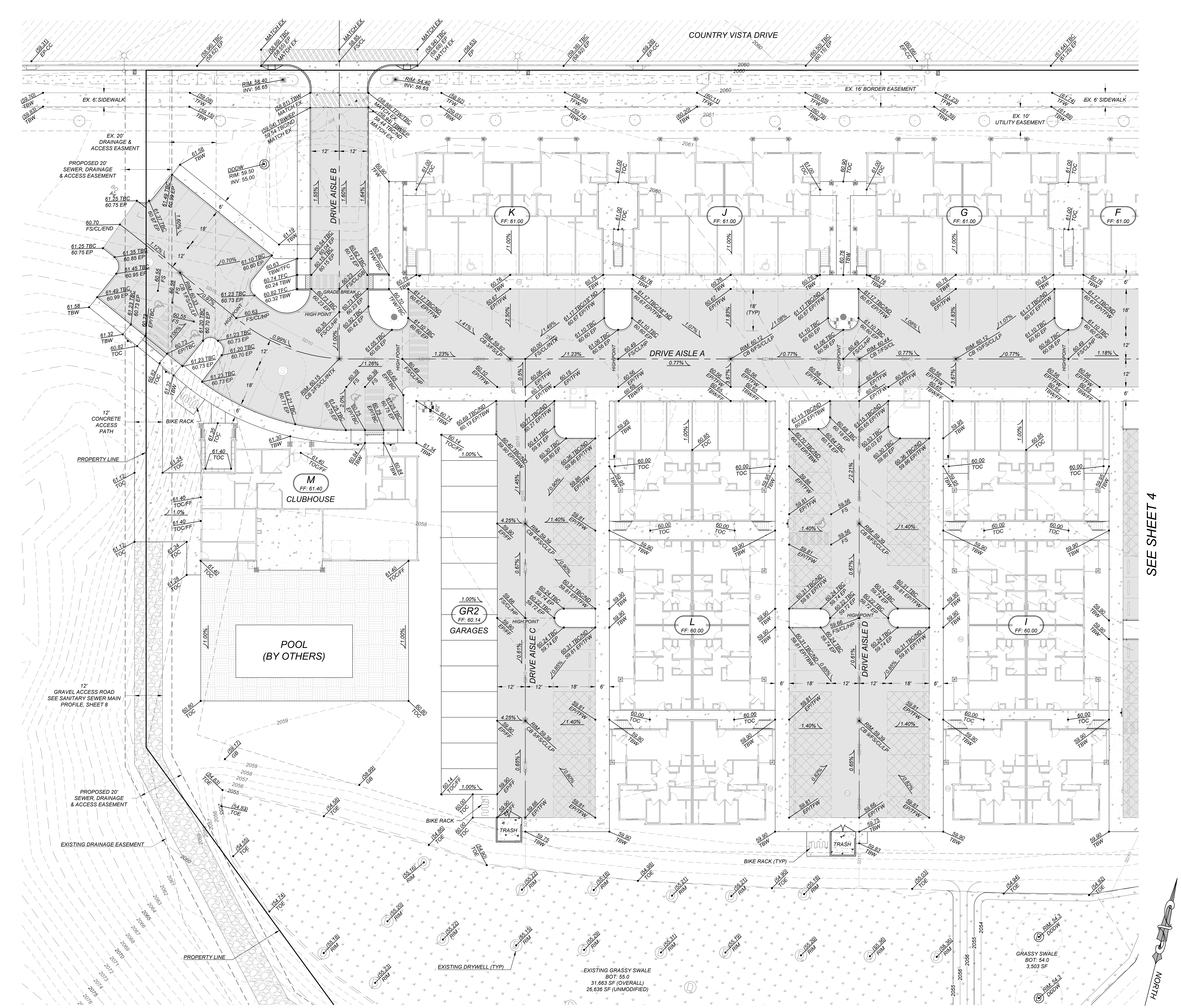
7. ALL CUT AND FILL SLOPES SHALL BE PROTECTED UNTIL EFFECTIVE EROSION CONTROL HAS BEEN ESTABLISHED.
8. THE CONTRACTOR SHALL MAINTAIN THE STREETS, SIDEWALKS, AND ALL OTHER PUBLIC RIGHTS-OF-WAY IN A CLEAN, SAFE AND USEABLE CONDITION. ALL SPILLS OF SOIL, ROCK OR CONSTRUCTION DEBRIS SHALL BE PROMPTLY REMOVED FROM THE PUBLICLY OWNED PROPERTY DURING CONSTRUCTION AND UPON COMPLETION OF THE PROJECT. ALL ADJACENT PROPERTY, PRIVATE OR PUBLIC SHALL BE MAINTAINED IN A CLEAN, SAFE AND USEABLE CONDITION.
9. IN THE EVENT THAT ANY TEMPORARY CONSTRUCTION ITEM IS REQUIRED THAT IS NOT SHOWN ON THESE DRAWINGS, THE OWNER AGREES TO PROVIDE AND INSTALL SUCH ITEM AT HIS OWN EXPENSE AND AT THE DIRECTION OF THE CITY ENGINEER AND/OR THE ENGINEER OF RECORD. TEMPORARY CONSTRUCTION INCLUDES DITCHES, BERMS, ROAD SIGNS AND BARRICADES, ETC.
10. THE CONTRACTOR SHALL TAKE ALL NECESSARY AND PROPER PRECAUTIONS TO PROTECT ADJACENT PROPERTIES FROM ANY AND ALL DAMAGE THAT MAY OCCUR FROM STORMWATER RUNOFF AND/OR DEPOSITION OF DEBRIS RESULTING FROM ANY AND ALL WORK IN CONNECTION WITH THE GRADING OPERATIONS.
11. CONTRACTOR SHALL PROVIDE ALL NECESSARY HORIZONTAL AND VERTICAL TRANSITION BETWEEN NEW CONSTRUCTION AND EXISTING SURFACES TO PROVIDE FOR PROPER DRAINAGE AND OF INGRESS AND EGRESS TO SAID CONSTRUCTION. EXTENT OF TRANSITIONS TO BE DETERMINED BY THE CITY ENGINEER.
12. ALL STREET STRUCTURAL SECTIONS SHALL BE PER THE RECOMMENDATIONS OF THE SOILS ENGINEER. BASED ON CB OR R- VALUES. NO PAVING OR BASE WORK SHALL COMMENCE UNTIL A STREET STRUCTURAL SECTION IS APPROVED BY THE CITY ENGINEER, CITY OF LIBERTY LAKE.
13. PROTECTION AND REPLACEMENT OF SURVEY MONUMENTS OR PROPERTY STAKES NOT DELINEATED ON THE CONTRACT DRAWINGS SHALL BE THE CONTRACTOR'S RESPONSIBILITY. REPLACEMENT OF SURVEY MONUMENTS OR PROPERTY STAKES SHALL BE DONE TO THE CITY OF LIBERTY LAKE SATISFACTION.
14. CONTRACTOR IS REQUIRED TO CALL FOR LOCATES. CALL BEFORE YOU DIG, 811.
15. ENGINEER OF RECORD MAKES NO GUARANTEE OF TOPOGRAPHY SHOWN HEREON. CONTRACTOR TO FIELD VERIFY AT HIS EXPENSE ALL TOPOGRAPHY PRIOR TO THE START OF ANY WORK HEREON. CONTRACTOR SHOULD IMMEDIATELY NOTIFY ENGINEER OF RECORD IF ANY DISCREPANCIES ARE FOUND.
16. LIMITS OF CLEARING TO BE A MINIMUM OF 20' OUTSIDE OF CUT/ FILL DAYLIGHT LINE IF POSSIBLE OR AS DETERMINED IN FIELD BY ENGINEER.
17. A LICENSED PROFESSIONAL ENGINEER WITH APPROPRIATE GEOTECHNICAL EXPERIENCE SHALL MONITOR, TEST AND CERTIFY THAT THE WORK WAS PERFORMED IN ACCORDANCE WITH THE SPECIFICATIONS HEREON AND WITH CITY OF LIBERTY LAKE STANDARDS.
18. THE STABILITY OF ALL EXCAVATION SLOPES IS THE RESPONSIBILITY OF THE CONTRACTOR, AND SHALL BE IN ACCORDANCE WITH FEDERAL, STATE, AND LOCAL STANDARDS.
19. STRUCTURAL FILL SHALL CONSIST OF THE EXCAVATED SANDY, GRAVEL, AND GRAVELLY SAND, OR EXISTING FILL. ALL BOULDERS OR COBBLES GREATER THAN TWELVE INCHES IN DIAMETER SHALL BE REMOVED FROM THE ROAD PRISM. ANY TOPSOIL OR EXISTING FILL THAT CONTAINS DEBRIS OR ORGANIC MATERIAL SHALL NOT BE USED AS STRUCTURAL FILL.
20. ALL COMPACTION EFFORTS SHALL BE MONITORED AND TESTED BY AN EXPERIENCED SOILS TECHNICIAN UNDER THE SUPERVISION OF A LICENSED GEOTECHNICAL ENGINEER REPRESENTING THE OWNER.
21. EROSION PROTECTION AND SEDIMENTATION CONTROL MEASURES ARE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE IN ACCORDANCE WITH THE CITY OF LIBERTY LAKE STANDARDS.
22. A LICENSED GEOTECHNICAL ENGINEER SHALL ASSESS THE SUITABILITY OF EXCAVATED SOIL AND ROCK MATERIAL FOR REUSE AS COMPACTED FILL, AND ALSO ASSESS THE CONDITION OF THE EMBANKMENT, AND ROADWAY SUBGRADE AND PROVIDE RECOMMENDATIONS FOR ANY OVER EXCAVATION THAT MAY BE NECESSARY. GROUNDWATER ENCOUNTERED DURING CONSTRUCTION THAT MAY REQUIRE SPECIAL DRAINAGE PROCEDURES SHALL ALSO BE ASSESSED BY A LICENSED GEOTECHNICAL ENGINEER.
23. CONTRACTOR IS TO NOTIFY GEOTECHNICAL ENGINEER AND THE ENGINEER OF RECORD 48 HOURS PRIOR TO EACH AND EVERY START OR STOPPING OF CONSTRUCTION, AS WELL AS EACH TIME A LIFT OF GRADING IS READY FOR INSPECTION, AND EACH AND EVERY TIME CONTRACTOR IS REQUESTING GRADING INSPECTION FROM CITY. FAILURE TO NOTIFY GEOTECHNICAL AND THE ENGINEER OF RECORD MAY RESULT IN CONTRACTOR REMOVING ANY MATERIAL THAT HAS NOT BEEN INSPECTED.

NOTES

1. ALL SIDEWALK AT 1.5% MIN. SLOPE (2.0% MAX.).
2. CURB NOSE DOWNS (ND) TO BE 18" UNLESS OTHERWISE NOTED.

LEGEND

2280 — EXISTING 1' CONTOURS



SCALE: 1" = 20'

UNDERGROUND SERVICE ALERT
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REVISION BLOCK

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LAKE CITY ENGINEERING
3909 N. SCHREIBER WAY, STE. 4
COEUR D'ALENE, IDAHO 83815
PHONE: 208-676-0230

LEGACY VILLAS

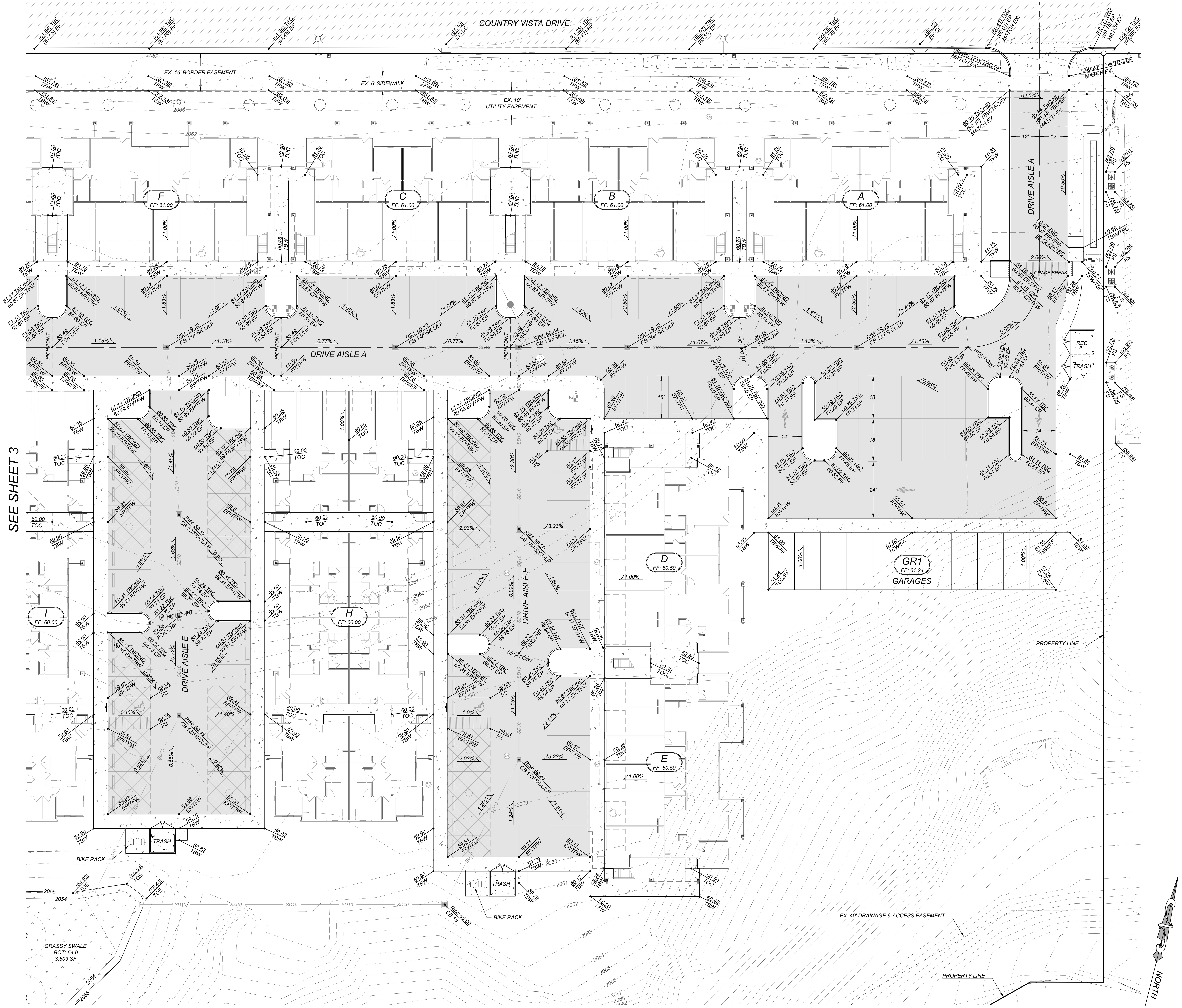
GRADING PLAN - WEST HALF
LIBERTY LAKE, WASHINGTON

ONE INCH
AT FULL SIZE IF NOT ONE INCH SCALE ACCORDINGLY

DESIGNED BY:	DCD
DRAFTED BY:	DLH
DATE:	6/20/2016
JOB NO:	LCE 15-072

3

14



NOTES

1. ALL SIDEWALK AT 1.5% MIN. SLOPE (2.0% MAX.).
2. CURB NOSE DOWNS (ND) TO BE 18" UNLESS OTHERWISE NOTED.

LEGEND

2280 — EXISTING 1' CONTOURS

0 10 20 40
SCALE: 1" = 20'

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PHONE: 208-676-0230

LEGACY VILLAS

GRADING PLAN - EAST HALF
LIBERTY LAKE, WASHINGTON

ONE INCH
AT FULL SIZE IF NOT ONE INCH SCALE ACCORDINGLY

DESIGNED BY:	DCD
DRAFTED BY:	DLH
DATE:	6/20/2016
JOB NO:	LCE 15-072

4

14

STREET KEY NOTES:

1. SAWCUT EXISTING CURB AND GUTTER, SIDEWALK AND PAVEMENT AS SHOWN AND DISPOSE PER BMP REQUIREMENTS.
2. INSTALL URBAN APPROACH PER DETAIL SHOWN ON SHEET 12.
3. INSTALL ASPHALT PAVEMENT SECTION TO MATCH EXISTING.
4. INSTALL 2" ASPHALT OVER 4" CRUSHED AGGREGATE BASE COURSE OVER COMPACTED APPROVED NATIVE SUB GRADE PER DETAIL ON SHEET 12.
5. INSTALL TYPE "B" STANDARD CURB AND GUTTER PER SPOKANE COUNTY STANDARD DRAWING A-3. SEE DETAIL ON SHEET 13.
6. INSTALL TYPE "A" STANDARD STRAIGHT CURB PER PER SPOKANE COUNTY STANDARD DRAWING A-3. SEE DETAIL ON SHEET 13.
7. INSTALL 6' CONCRETE SIDEWALK PER SPOKANE COUNTY STANDARD DRAWING A-4. SEE DETAIL ON SHEET 13.
8. INSTALL PEDESTRIAN RAMP WITH DETECTABLE WARNING SURFACE PER WSDOT STANDARD PLAN F-40.12-02, F-40.16-02 AND F-45.10.01. SEE GRADING PLANS FOR ELEVATIONS. SEE DETAIL ON SHEET 13.
9. INSTALL 8'x10' TRASH ENCLOSURE PER WASTE MANAGEMENT REQUIREMENTS. INSTALL SIGHT OBSCURING FENCE/WALL PER THE CITY OF LIBERTY LAKE REQUIREMENTS AND THE DIRECTION OF THE OWNER.
10. INSTALL BIKE RACK PER THE APPROVAL OF THE OWNER.
11. INSTALL WHEEL STOP PER CITY OF LIBERTY LAKE AND MANUFACTURER'S SPECIFICATIONS AND REQUIREMENTS. SEE DETAIL ON SHEET 12.
12. CONSTRUCT 12' WIDE CONCRETE ACCESS PATH PER DETAIL ON SHEET 12.

STORMWATER KEY NOTES:

20. INSTALL CURB INLET TYPE 1, L=3', PER SPOKANE COUNTY STANDARD DRAWING B-8. SEE DETAIL ON SHEET 13.
21. INSTALL CURB INLET TYPE 2 PER SPOKANE COUNTY STANDARD DRAWING B-9. SEE DETAIL ON SHEET 13.
22. CONSTRUCT GRASSED INFILTRATION AREA PER DETAIL ON SHEET 10.
23. INSTALL TYPE 1 CATCH BASIN AND METAL GRATE TYPE 3 PER SPOKANE COUNTY STANDARD DRAWING B-4 AND B-14. SEE DETAILS ON SHEET 13.
24. INSTALL TYPE 1 CONCRETE INLET AND METAL GRATE TYPE 3 PER SPOKANE COUNTY STANDARD DRAWING B-5 AND B-14. SEE DETAILS ON SHEET 13.
25. INSTALL TYPE B DRYWELL PER SPOKANE COUNTY STANDARD DRAWING B-1a. SEE DETAIL ON SHEET 13.
26. INSTALL SDR 35 PVC STORM DRAIN OR APPROVED EQUAL, AND FITTINGS AS REQUIRED, PER MANUFACTURERS REQUIREMENTS AND SPECIFICATIONS. SIZE AS SPECIFIED.

SEWER AND WATER KEY NOTES:

30. EXISTING SANITARY SEWER MANHOLE.
31. EXISTING SANITARY SEWER MAIN. PROTECT IN PLACE. SIZE AS SPECIFIED.
32. INSTALL DOGHOUSE MANHOLE PER LLSWD STANDARD PLAN No. 7-05-I, CONTRACTOR TO VERIFY DEPTH AND LOCATION OF EXISTING SEWER MAIN PRIOR TO CONSTRUCTION. SEE DETAIL ON SHEET 14.
33. INSTALL 48" DIAMETER SANITARY SEWER MANHOLE PER LLSWD STANDARD PLAN No. 7-05-A. SEE DETAIL ON SHEET 14.
34. INSTALL 8" SDR 35 PVC SANITARY SEWER MAIN PER MANUFACTURER'S SPECIFICATIONS AND LLSWD STANDARD PLAN No. 7-08-A. LENGTH AND SLOPE AS SPECIFIED. SEE DETAIL ON SHEET 14.
35. INSTALL SDR 35 PVC SANITARY SEWER SERVICE PER MANUFACTURER'S SPECIFICATIONS AND LLSWD STANDARD PLAN No. 7-18-A. SIZE, LENGTH AND SLOPE AS SPECIFIED. SEE DETAIL ON SHEET 14.
36. INSTALL SANITARY SEWER CLEANOUT PER LLSWD STANDARD PLAN No. 7-19-A. SEE DETAIL ON SHEET 14.
37. EXISTING DOMESTIC WATER MAIN. PROTECT IN PLACE. SIZE AS SPECIFIED.
38. EXISTING FIRE HYDRANT. PROTECT IN PLACE.
39. REMOVE EXISTING END CAP AND INSTALL 8" DI BEND, ANGLE AS SHOWN, PER MANUFACTURER'S SPECIFICATIONS AND LLSWD STANDARD PLAN No. 7-11-A. CONTRACTOR TO VERIFY DEPTH AND LOCATION PRIOR TO CONSTRUCTION. SEE DETAIL ON SHEET 14.
40. INSTALL 8" DI DOMESTIC WATER MAIN PER MANUFACTURER'S SPECIFICATIONS AND LLSWD PLAN No. 7-08-A. SEE DETAIL ON SHEET 14.
41. INSTALL DI TEE, SIZE AS SHOWN, PER MANUFACTURER'S AND LLSWD REQUIREMENTS AND SPECIFICATIONS.
42. INSTALL 8" RESILIENT SEAT GATE VALVE AND CAST IRON VALVE BOX PER MANUFACTURER'S AND LLSWD REQUIREMENTS AND SPECIFICATIONS.
43. INSTALL FIRE HYDRANT ASSEMBLY PER LLSWD STANDARD PLAN No. 7-14-A. SEE DETAIL ON SHEET 14.
44. INSTALL 8" DI BEND, ANGLE AS SHOWN, AND CAST IRON VALVE BOX PER MANUFACTURER'S SPECIFICATIONS AND LLSWD STANDARD PLAN No. 7-11-A. SEE DETAIL ON SHEET 14.
45. INSTALL 1" DOMESTIC WATER SERVICE AND 1" METER PER LLSWD STANDARD PLAN No. 7-15-A AND 7-15-C. SEE DETAILS ON SHEET 14.
46. INSTALL 1-1/2" DOMESTIC WATER SERVICE AND 1-1/2" METER PER LLSWD STANDARD PLAN No. 7-15-A AND 7-15-D. SEE DETAILS ON SHEET 14.
47. INSTALL 2" DOMESTIC WATER SERVICE AND 2" METER PER LLSWD STANDARD PLAN No. 7-15-A AND 7-15-D. SEE DETAILS ON SHEET 14.
48. INSTALL 3" DOMESTIC WATER SERVICE AND 3" METER VAULT PER LLSWD REQUIREMENTS AND DETAIL ON SHEET 14.
49. INSTALL FIRE SERVICE LINE, SIZE AS SHOWN, PER MANUFACTURER'S AND LLSWD SPECIFICATIONS. INSTALL VALVE AT MAIN, SIZE PER SERVICE LINE, PER LLSWD SPECIFICATIONS. BACKFLOW PREVENTION ASSEMBLY TO BE INSTALLED IN MECHANICAL ROOM PER APPROVED ARCHITECTURAL PLANS.
50. FIRE DEPARTMENT CONNECTION. SEE APPROVED ARCHITECTURAL PLANS.
51. INSTALL 2" BLOW OFF ASSEMBLY PER MANUFACTURER'S SPECIFICATIONS AND LLSWD STANDARD PLAN No. 7-11-B. SEE DETAIL ON SHEET 14.
52. INSTALL 2" IRRIGATION SERVICE WITH BACKFLOW PREVENTION ASSEMBLY PER MANUFACTURER'S SPECIFICATIONS AND LLSWD STANDARD PLAN No. 7-15-E. SEE DETAIL ON SHEET 14.
53. INSTALL SLEEVING / CASING PER LLSWD REQUIREMENTS AS REQUIRED. CONTRACTOR TO FIELD DETERMINE WITH ENGINEER OF RECORD.

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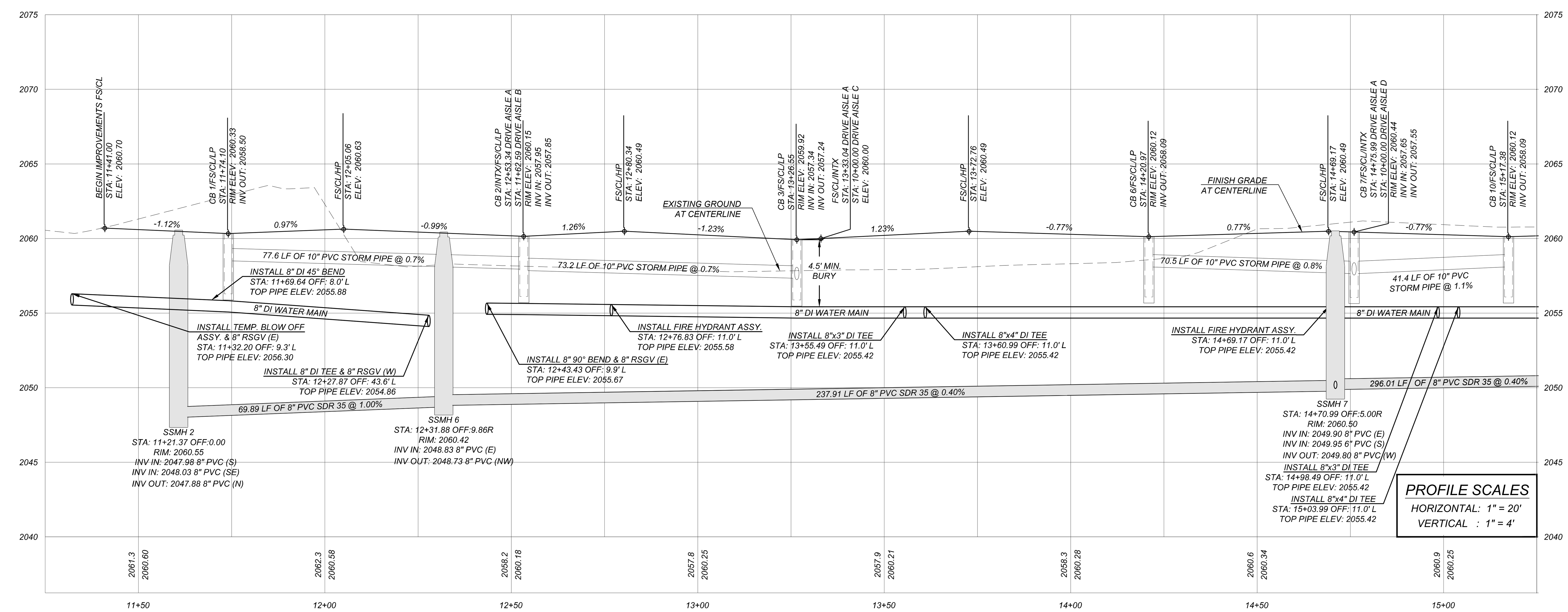
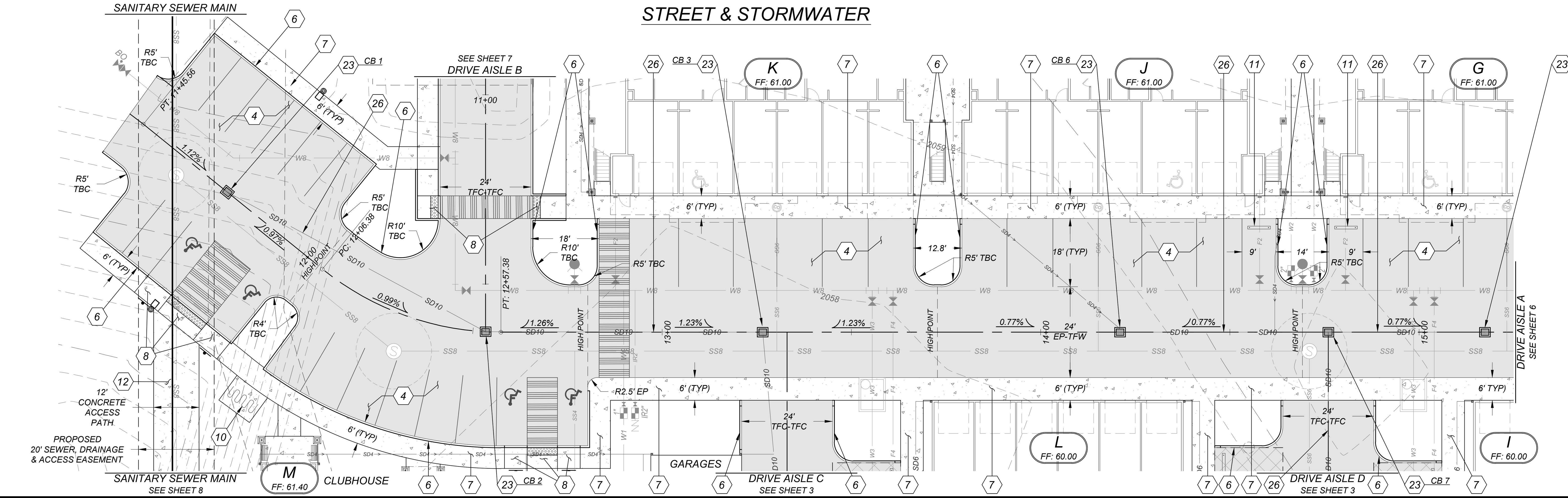


PROFILE SCALES
HORIZONTAL: 1" = 20'
VERTICAL : 1" = 4'

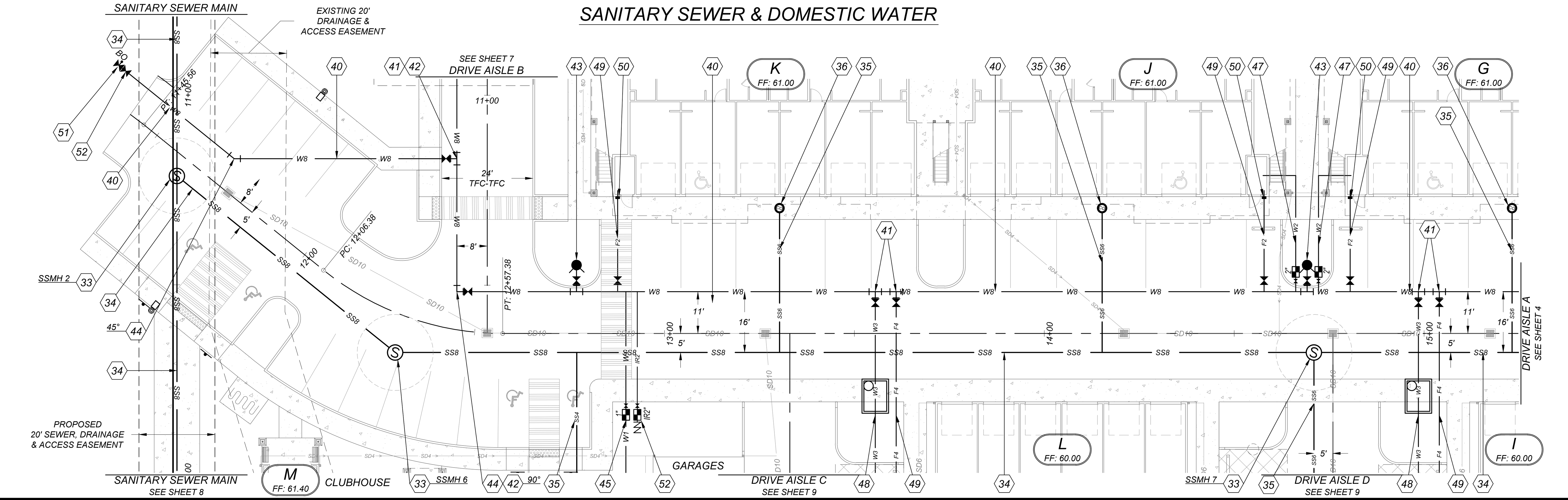
DRIVE AISLE A
STA: 11+25 - 15+25

STREET & STORMWATER



NOTE:
SEE GRADING PLAN FOR ELEVATIONS.

SANITARY SEWER & DOMESTIC WATER



WATER NOTE:
THRUST BLOCKS NOT SHOWN FOR CLARITY. INSTALL AS REQUIRED PER LLSWD REQUIREMENTS.

SCALE: 1" = 20'
ALL VIEWPORTS AT A 1" = 20' SCALE

REVISION BLOCK

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3909 N. SCHREIBER WAY, STE. 4
COEUR D'ALENE, IDAHO 83815
PHONE: 208-676-0230

LEGACY VILLAS

STREET PLAN AND PROFILE - DRIVE AISLE "A"
LIBERTY LAKE, WASHINGTON

ONE INCH
AT FULL SIZE IF NOT ONE INCH SCALE ADJUST SCALES ACCORDINGLY

DESIGNED BY:	DCD
DRAFTED BY:	DLH
DATE:	6/20/2016
JOB NO:	LCE 15-072

5

14

STREET KEY NOTES:

1. SAWCUT EXISTING CURB AND GUTTER, SIDEWALK AND PAVEMENT AS SHOWN AND DISPOSE PER BMP REQUIREMENTS.
2. INSTALL URBAN APPROACH PER DETAIL SHOWN ON SHEET 12.
3. INSTALL ASPHALT PAVEMENT SECTION TO MATCH EXISTING.
4. INSTALL 2" ASPHALT OVER 4" CRUSHED AGGREGATE BASE COURSE OVER COMPACTED APPROVED NATIVE SUB GRADE PER DETAIL ON SHEET 12.
5. INSTALL TYPE "B" STANDARD CURB AND GUTTER PER SPOKANE COUNTY STANDARD DRAWING A-3. SEE DETAIL ON SHEET 13.
6. INSTALL TYPE "A" STANDARD STRAIGHT CURB PER PER SPOKANE COUNTY STANDARD DRAWING A-3. SEE DETAIL ON SHEET 13.
7. INSTALL 6' CONCRETE SIDEWALK PER SPOKANE COUNTY STANDARD DRAWING A-4. SEE DETAIL ON SHEET 13.
8. INSTALL PEDESTRIAN RAMP WITH DETECTABLE WARNING SURFACE PER WSDOT STANDARD PLAN F-40.12-02, F-40.16-02 AND F-45.10.01. SEE GRADING PLANS FOR ELEVATIONS. SEE DETAIL ON SHEET 13.
9. INSTALL 8'x10' TRASH ENCLOSURE PER WASTE MANAGEMENT REQUIREMENTS. INSTALL SIGHT OBSCURING FENCE/WALL PER THE CITY OF LIBERTY LAKE REQUIREMENTS AND THE DIRECTION OF THE OWNER.
10. INSTALL BIKE RACK PER THE APPROVAL OF THE OWNER.
11. INSTALL WHEEL STOP PER CITY OF LIBERTY LAKE AND MANUFACTURER'S SPECIFICATIONS AND REQUIREMENTS. SEE DETAIL ON SHEET 12.
12. CONSTRUCT 12' WIDE CONCRETE ACCESS PATH PER DETAIL ON SHEET 12.

STORMWATER KEY NOTES:

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21. INSTALL CURB INLET TYPE 2 PER SPOKANE COUNTY STANDARD DRAWING B-9. SEE DETAIL ON SHEET 13.
22. CONSTRUCT GRASSED INFILTRATION AREA PER DETAIL ON SHEET 10.
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SEWER AND WATER KEY NOTES:

30. EXISTING SANITARY SEWER MANHOLE.
31. EXISTING SANITARY SEWER MAIN. PROTECT IN PLACE. SIZE AS SPECIFIED.
32. INSTALL DOGHOUSE MANHOLE PER LLSWD STANDARD PLAN No. 7-05-I. CONTRACTOR TO VERIFY DEPTH AND LOCATION OF EXISTING SEWER MAIN PRIOR TO CONSTRUCTION. SEE DETAIL ON SHEET 14.
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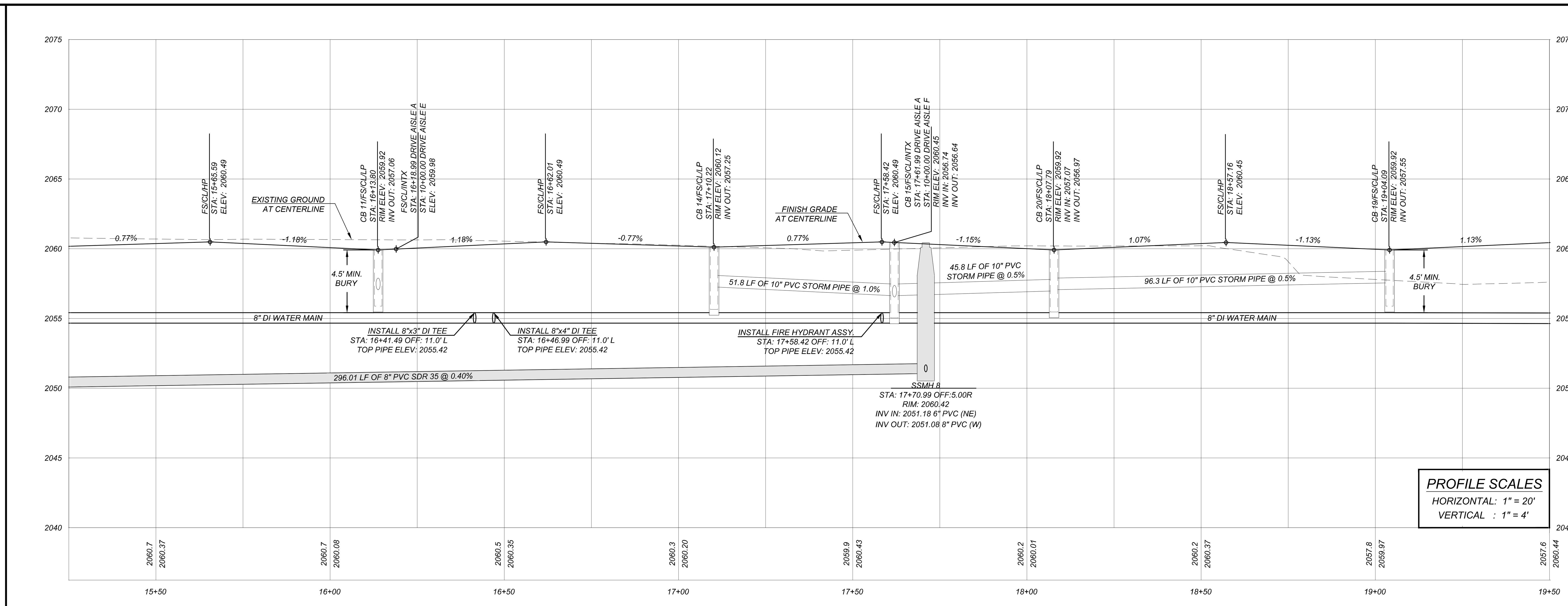
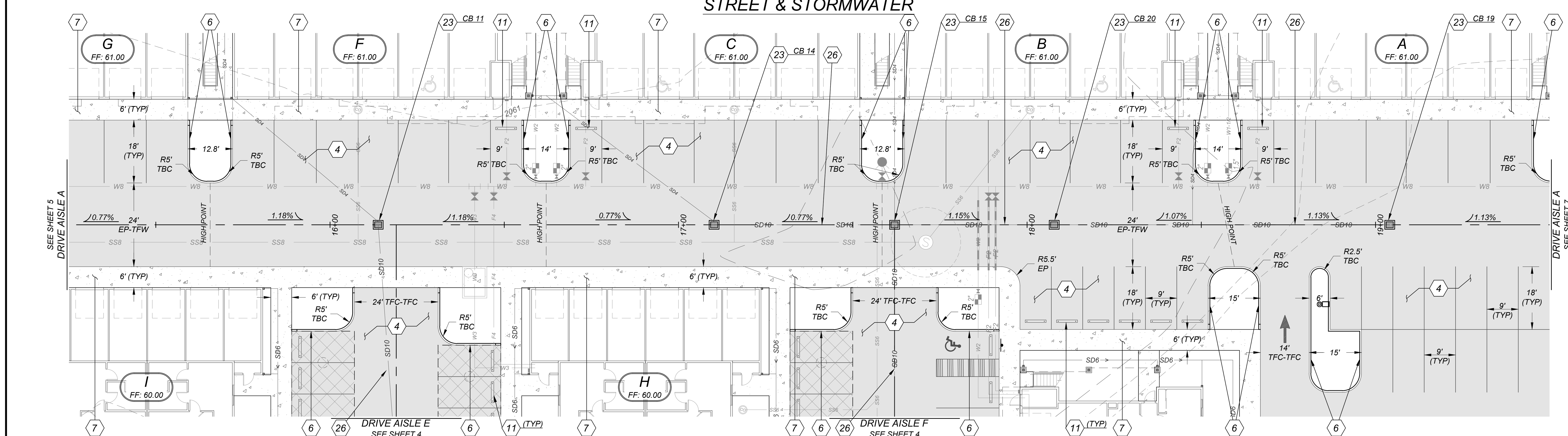


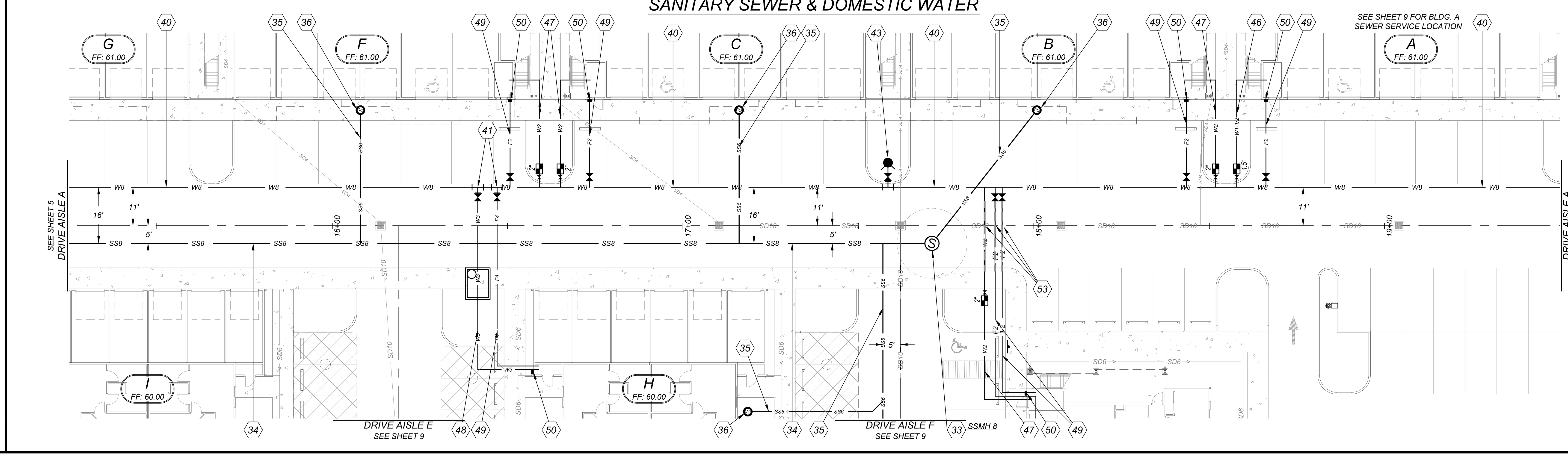
DRIVE AISLE A
STA: 15+25 - 19+50

STREET & STORMWATER



NOTE:
SEE GRADING PLAN FOR ELEVATIONS.

SANITARY SEWER & DOMESTIC WATER



WATER NOTE:
THRUST BLOCKS NOT SHOWN FOR CLARITY. INSTALL AS REQUIRED PER LLSWD REQUIREMENTS.

SCALE: 1" = 20'
ALL VIEWPORTS AT A 1" = 20' SCALE

REVISION BLOCK

NO.	DESCRIPTION	INITIAL	DATE

LAKE CITY ENGINEERING
3909 N. SCHREIBER WAY, STE. 4
COEUR D'ALENE, IDAHO 83815
PHONE: 208-676-0230

LEGACY VILLAS

PLAN AND PROFILE - DRIVE AISLE A
LIBERTY LAKE, WASHINGTON

ONE INCH
AT FULL SIZE IF NOT ONE INCH SCALE ACCORDINGLY

DESIGNED BY:	DCD
DRAFTED BY:	DLH
DATE:	6/20/2016
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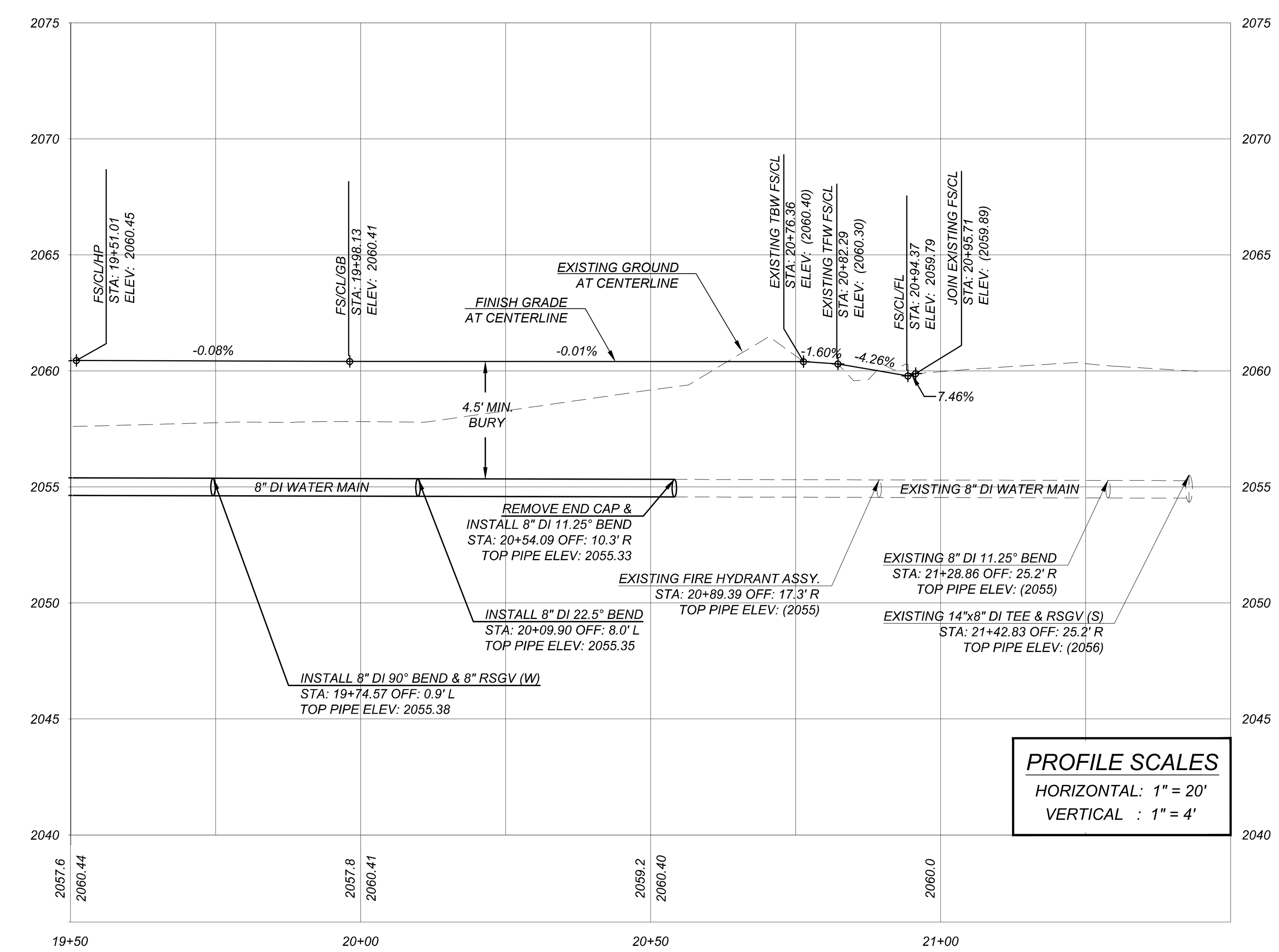
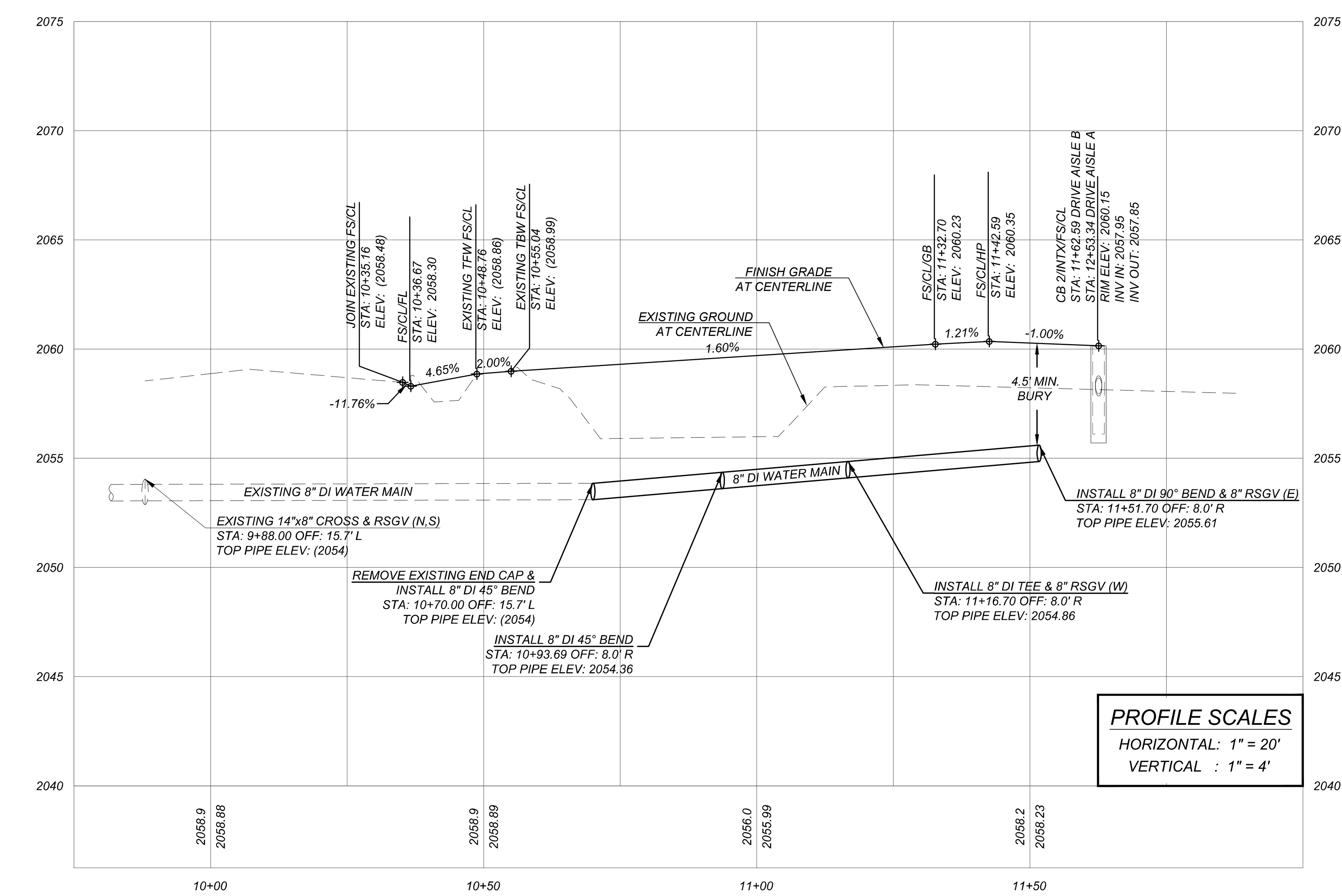


PROFILE SCALES
HORIZONTAL: 1" = 20'
VERTICAL : 1" = 4'

DRIVE AISLE A
STA: 19+50 - 21+50



PROFILE SCALES
HORIZONTAL: 1" = 20'
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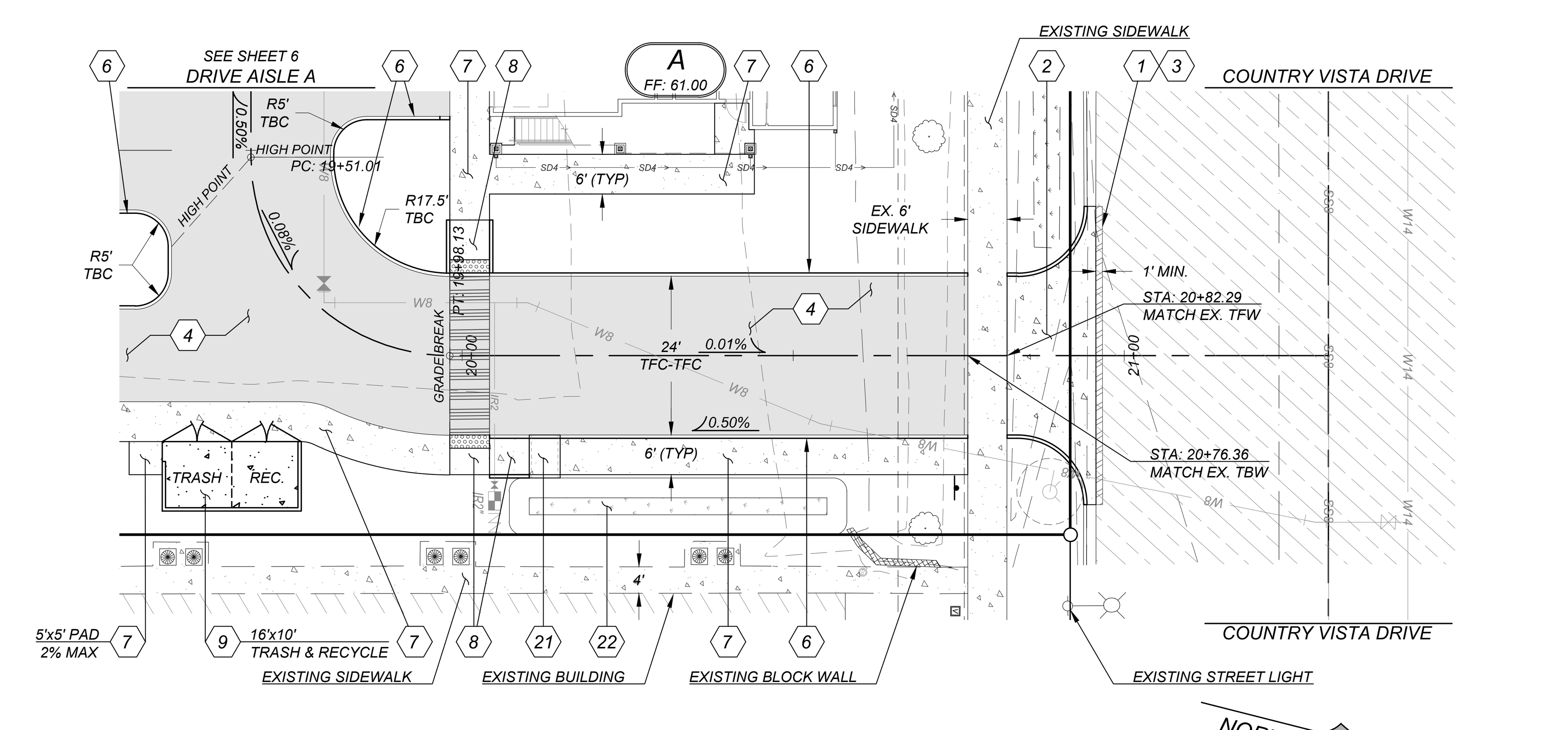
DRIVE AISLE B
STA: 9+75 - 11+50



NOTE:
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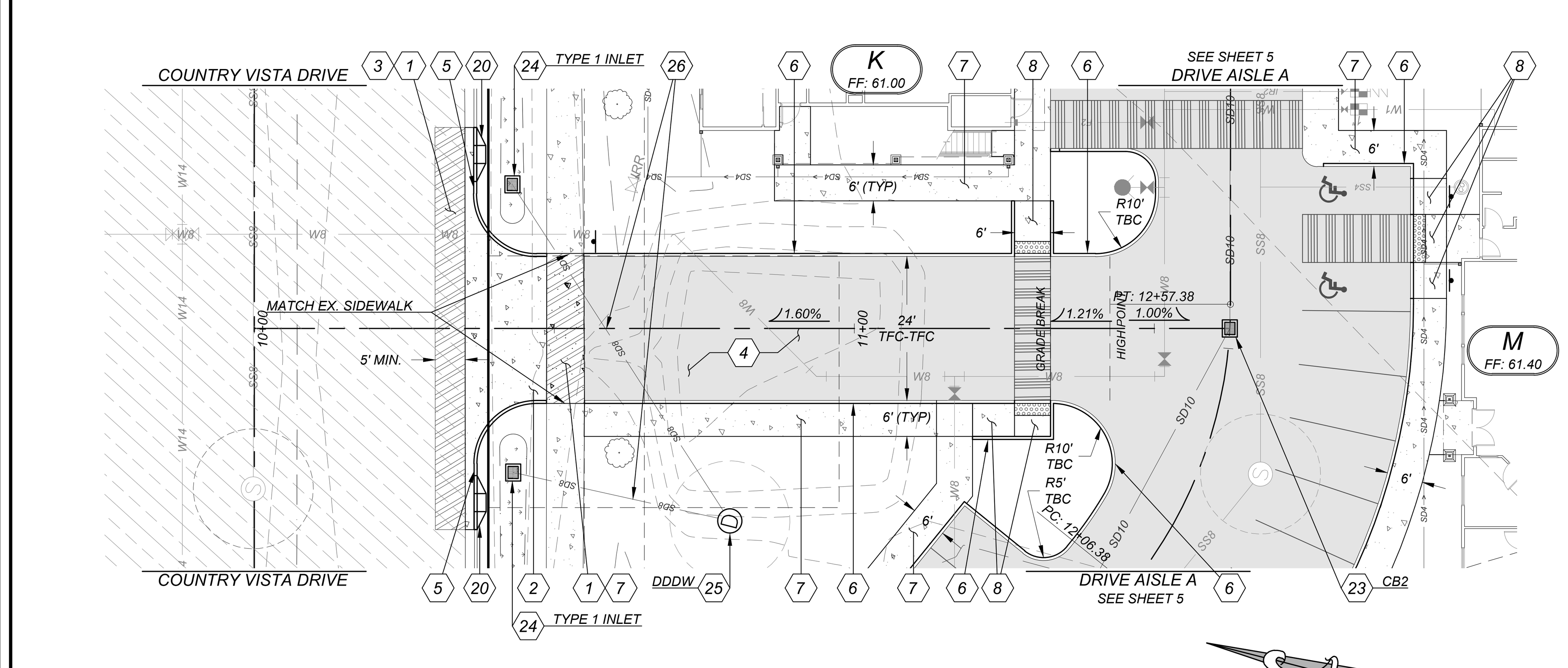
STREET & STORMWATER



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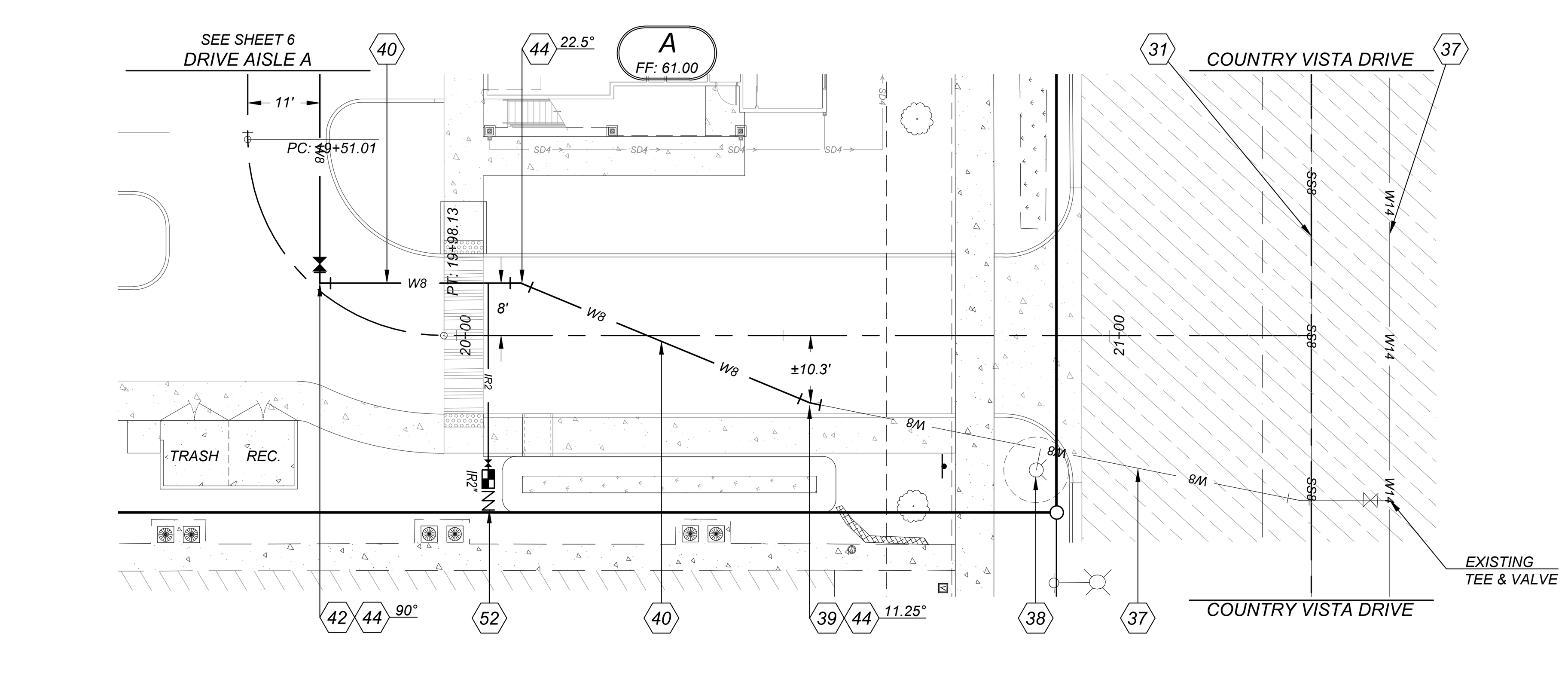
STREET & STORMWATER



WATER NOTE:
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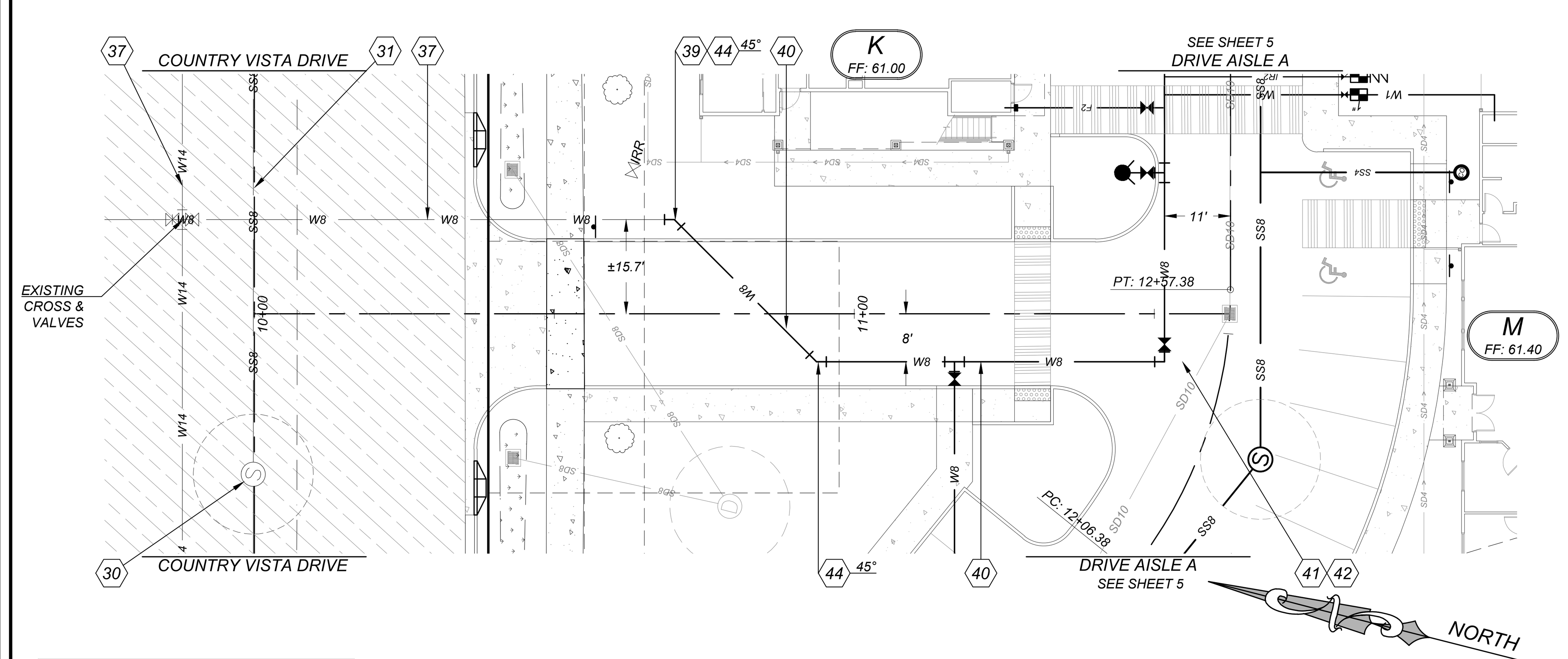
SANITARY SEWER & DOMESTIC WATER



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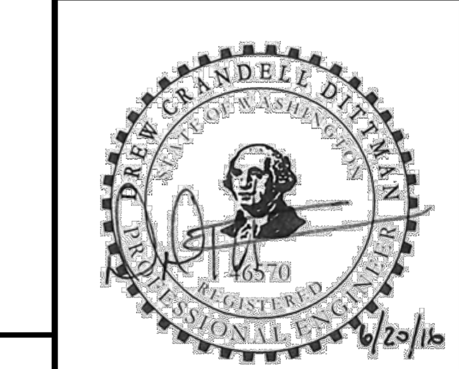

LEGACY VILLAS

PLAN AND PROFILE - DRIVE AISLE A AND DRIVE AISLE B
LIBERTY LAKE, WASHINGTON

ONE INCH
AT FULL SIZE IF NOT ONE INCH SCALE ACCORDINGLY

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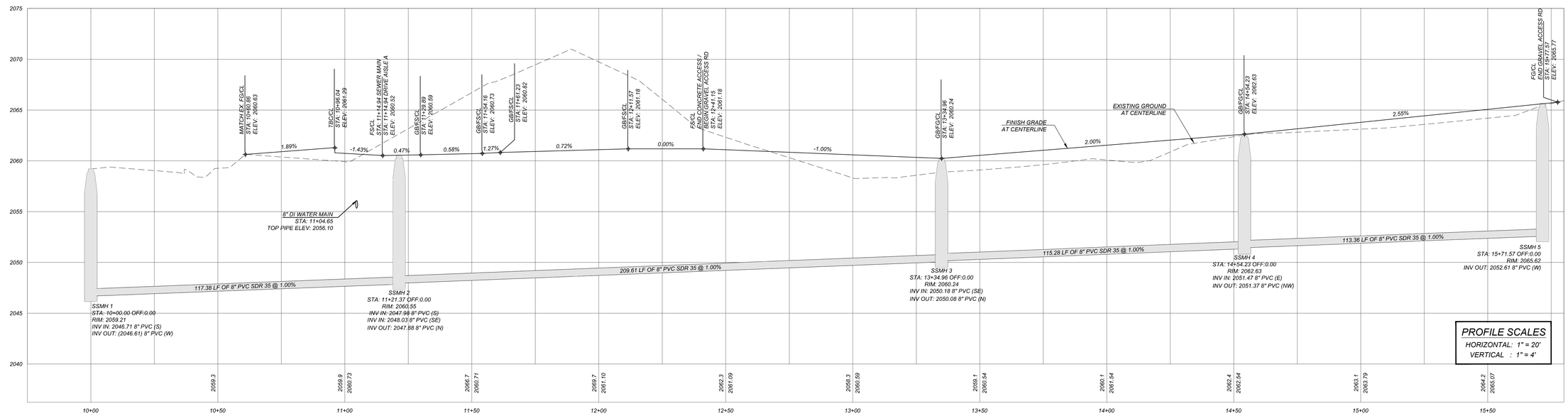
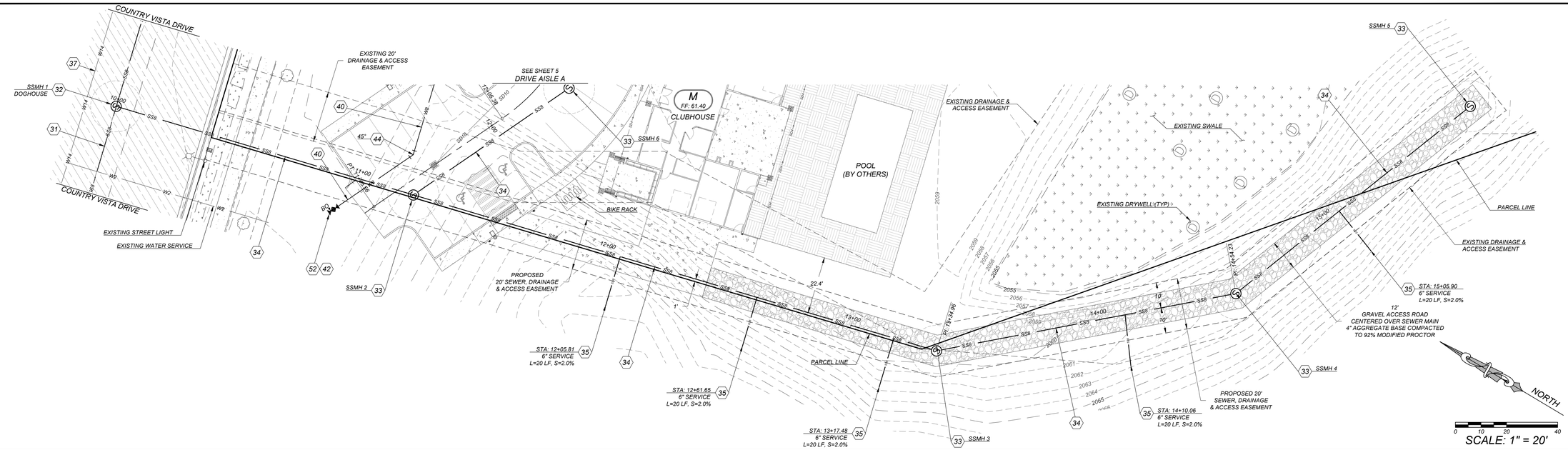


SANITARY SEWER MAIN
STA: 9+75 - 15+75



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PHONE: 208.676.4250

DAVID CHANDLER DITMAN
STATE OF WASHINGTON
16570
REGISTERED PROFESSIONAL ENGINEER
12/16

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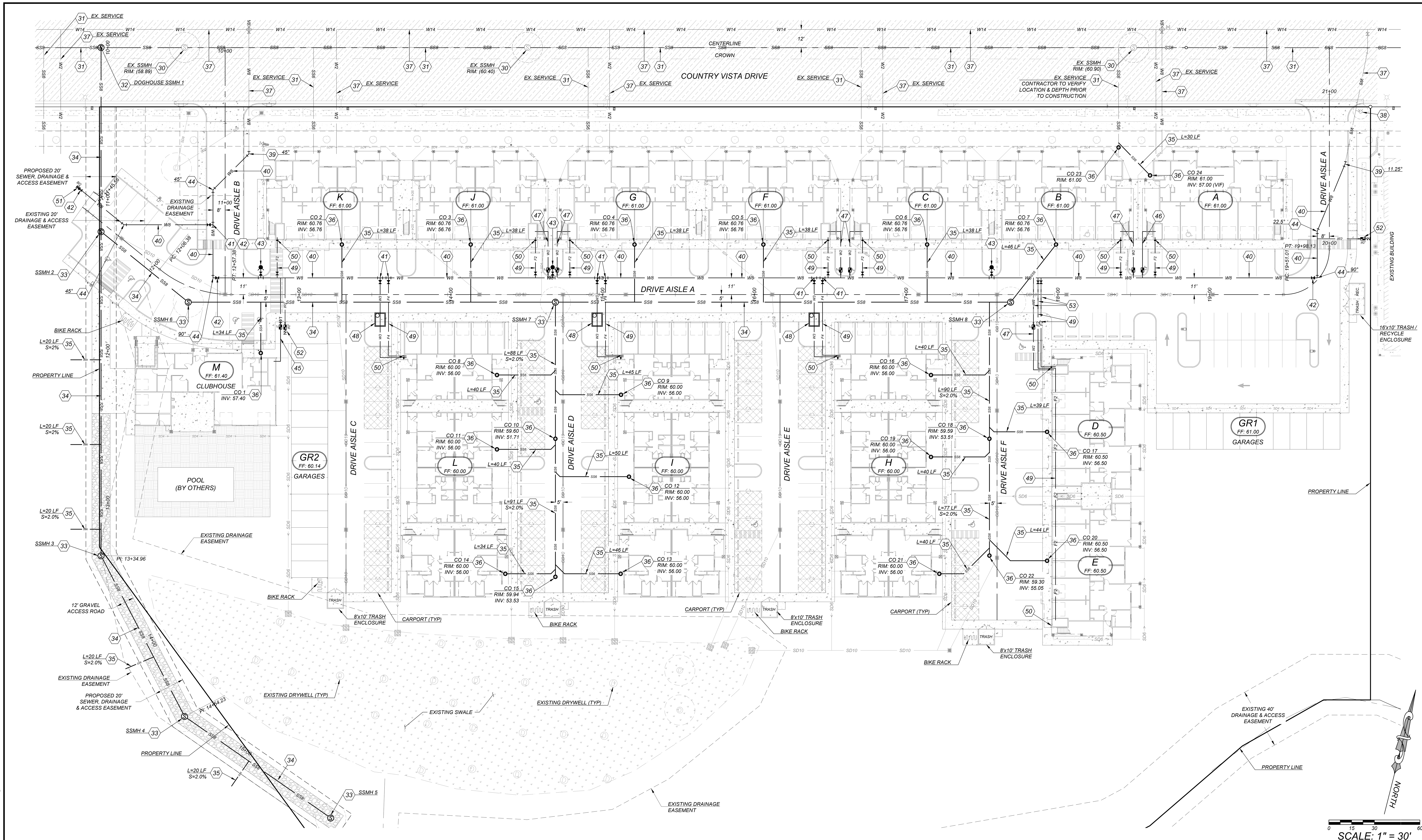
hoppe, Plotted: Jun 20, 2016 - 7:03pm, L:\2015\15-072\ACAD\15-072-CONST.dwg



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32. INSTALL DOGHOUSE MANHOLE PER LLSWD STANDARD PLAN No. 7-05-I. CONTRACTOR TO VERIFY DEPTH AND LOCATION OF EXISTING SEWER MAIN PRIOR TO CONSTRUCTION. SEE DETAIL ON SHEET 14.
33. INSTALL 48" DIAMETER SANITARY SEWER MANHOLE PER LLSWD STANDARD PLAN No. 7-05-A. SEE DETAIL ON SHEET 14.
34. INSTALL 8" SDR 35 PVC SANITARY SEWER MAIN PER MANUFACTURER'S SPECIFICATIONS AND LLSWD STANDARD PLAN No. 7-08-A. LENGTH AND SLOPE AS SPECIFIED. SEE DETAIL ON SHEET 14.
35. INSTALL SDR 35 PVC SANITARY SEWER SERVICE PER MANUFACTURER'S SPECIFICATIONS AND LLSWD STANDARD PLAN No. 7-18-A. SIZE, LENGTH AND SLOPE AS SPECIFIED. SEE DETAIL ON SHEET 14.
36. INSTALL SANITARY SEWER CLEANOUT PER LLSWD STANDARD PLAN No. 7-19-A. SEE DETAIL ON SHEET 14.
37. EXISTING DOMESTIC WATER MAIN. PROTECT IN PLACE. SIZE AS SPECIFIED.
38. EXISTING FIRE HYDRANT. PROTECT IN PLACE.
39. REMOVE EXISTING END CAP AND INSTALL 8" DI BEND, ANGLE AS SHOWN, PER MANUFACTURER'S SPECIFICATIONS AND LLSWD STANDARD PLAN No. 7-11-A. CONTRACTOR TO VERIFY DEPTH AND LOCATION PRIOR TO CONSTRUCTION. SEE DETAIL ON SHEET 14.
40. INSTALL 8" DI DOMESTIC WATER MAIN PER MANUFACTURER'S SPECIFICATIONS AND LLSWD PLAN No. 7-08-A. SEE DETAIL ON SHEET 14.
41. INSTALL DI TEE, SIZE AS SHOWN, PER MANUFACTURER'S AND LLSWD REQUIREMENTS AND SPECIFICATIONS.
42. INSTALL 8" RESILIENT SEAT GATE VALVE AND CAST IRON VALVE BOX PER MANUFACTURER'S AND LLSWD REQUIREMENTS AND SPECIFICATIONS.
43. INSTALL FIRE HYDRANT ASSEMBLY PER LLSWD STANDARD PLAN No. 7-14-A. SEE DETAIL ON SHEET 14.
44. INSTALL 8" DI BEND, ANGLE AS SHOWN, AND CAST IRON VALVE BOX PER MANUFACTURER'S SPECIFICATIONS AND LLSWD STANDARD PLAN No. 7-11-A. SEE DETAIL ON SHEET 14.
45. INSTALL 1" DOMESTIC WATER SERVICE AND 1" METER PER LLSWD STANDARD PLAN No. 7-15-A AND 7-15-C. SEE DETAILS ON SHEET 14.
46. INSTALL 1-1/2" DOMESTIC WATER SERVICE AND 1-1/2" METER PER LLSWD STANDARD PLAN No. 7-15-A AND 7-15-D. SEE DETAILS ON SHEET 14.
47. INSTALL 2" DOMESTIC WATER SERVICE AND 2" METER PER LLSWD STANDARD PLAN No. 7-15-A AND 7-15-D. SEE DETAIL ON SHEET 14.
48. INSTALL 3" DOMESTIC WATER SERVICE AND 3" METER VAULT PER LLSWD REQUIREMENTS AND DETAIL ON SHEET 14.
49. INSTALL FIRE SERVICE LINE, SIZE AS SHOWN, PER MANUFACTURER'S AND LLSWD SPECIFICATIONS. INSTALL VALVE AT MAIN, SIZE PER SERVICE LINE, PER LLSWD SPECIFICATIONS. BACKFLOW PREVENTION ASSEMBLY TO BE INSTALLED IN MECHANICAL ROOM PER APPROVED ARCHITECTURAL PLANS.
50. FIRE DEPARTMENT CONNECTION. SEE APPROVED ARCHITECTURAL PLANS.
51. INSTALL 2" BLOW OFF ASSEMBLY PER MANUFACTURER'S SPECIFICATIONS AND LLSWD STANDARD PLAN No. 7-11-B. SEE DETAIL ON SHEET 14.
52. INSTALL 2" IRRIGATION SERVICE WITH BACKFLOW PREVENTION ASSEMBLY PER MANUFACTURER'S SPECIFICATIONS AND LLSWD STANDARD PLAN No. 7-15-E. SEE DETAIL ON SHEET 14.
53. INSTALL SLEEVING / CASING PER LLSWD REQUIREMENTS AS REQUIRED. CONTRACTOR TO FIELD DETERMINE WITH ENGINEER OF RECORD.

SEWER SERVICE NOTE:
WYE FITTING ON SEWER SERVICE LINES FOR DRIVE AISLES D AND F.

WATER NOTE:
THRUST BLOCKS NOT SHOWN FOR CLARITY. INSTALL AS REQUIRED PER LLSWD REQUIREMENTS.

UNDERGROUND SERVICE ALERT
ONE-CALL NUMBER
811
CALL TWO BUSINESS DAYS BEFORE YOU DIG
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REVISION BLOCK

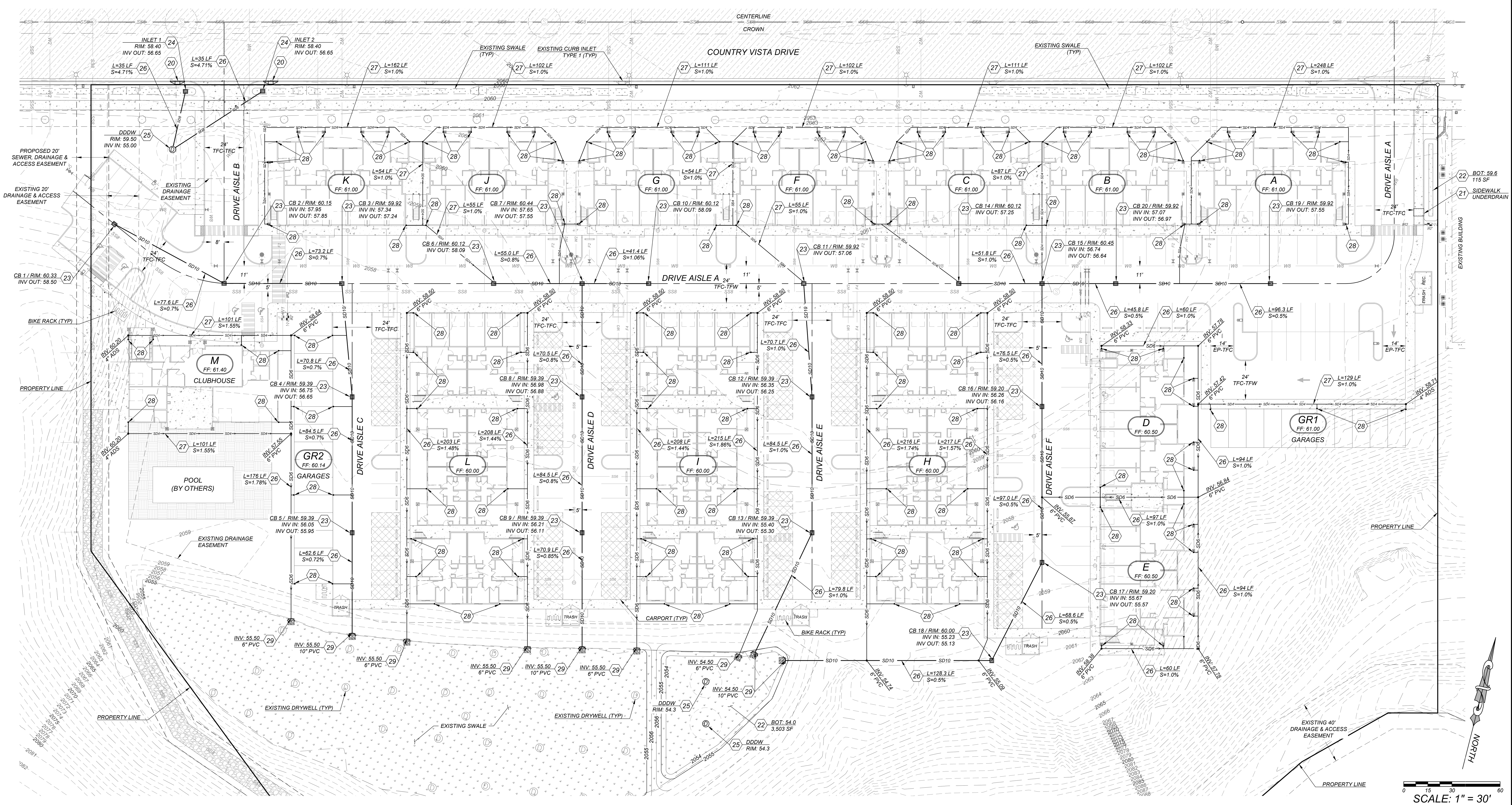
NO.	DESCRIPTION	INITIAL	DATE

LAKE CITY ENGINEERING
3909 N. SCHREIBER WAY, STE. 4
COEUR D'ALENE, IDAHO 83815
PHONE: 208-676-0230

LEGACY VILLAS
MASTER UTILITY PLAN
LIBERTY LAKE, WASHINGTON

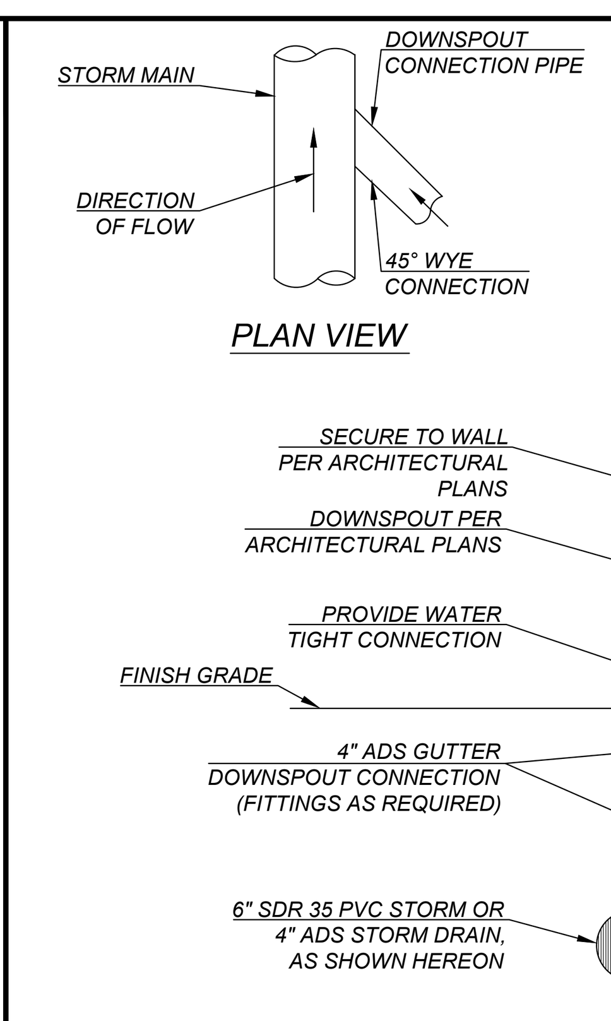
ONE INCH
AT FULL SIZE IF NOT ONE INCH SCALE ACCORDINGLY

DESIGNED BY:	DCD
DRAFTED BY:	DLH
DATE:	6/20/2016
JOB NO:	LCE 15-072



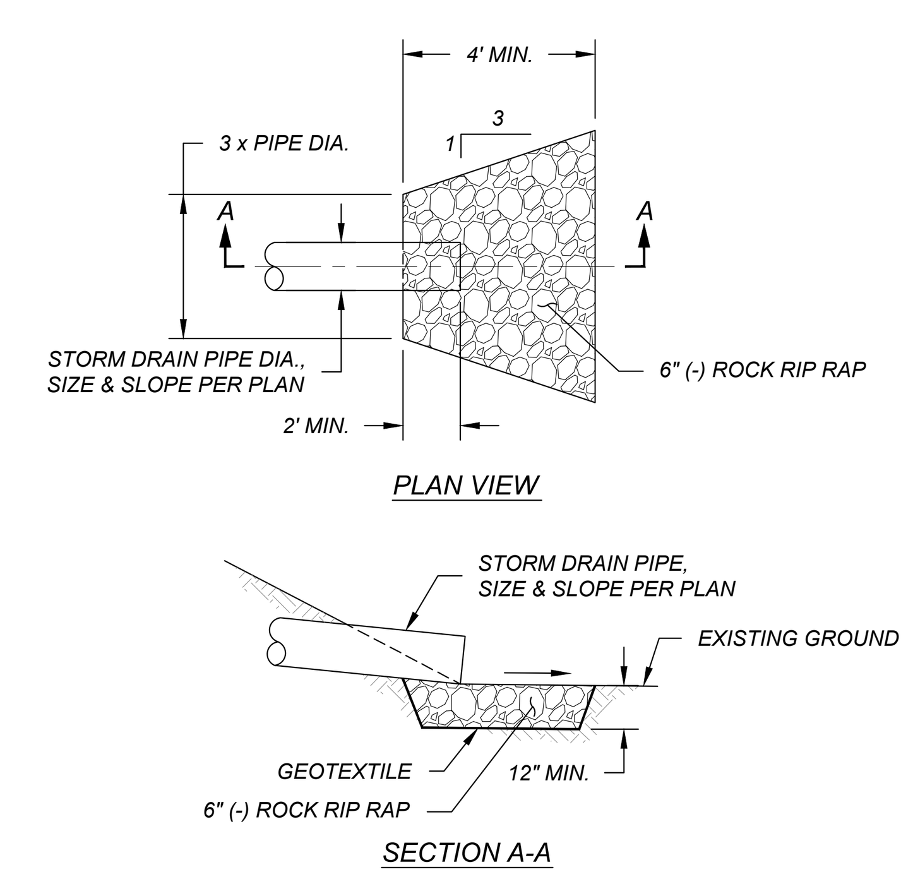
STORMWATER KEY NOTES:

20. INSTALL CURB INLET TYPE 1, L=3', PER SPOKANE COUNTY STANDARD DRAWING B-8. SEE DETAIL ON SHEET 13.
21. INSTALL CURB INLET TYPE 2 PER SPOKANE COUNTY STANDARD DRAWING B-9. SEE DETAIL ON SHEET 13.
22. CONSTRUCT GRASSED INFILTRATION AREA PER DETAIL, THIS SHEET.
23. INSTALL TYPE 1 CATCH BASIN AND METAL GRATE TYPE 3 PER SPOKANE COUNTY STANDARD DRAWING B-4 AND B-14. SEE DETAILS ON SHEET 13.
24. INSTALL TYPE 1 CONCRETE INLET AND METAL GRATE TYPE 3 PER SPOKANE COUNTY STANDARD DRAWING B-5 AND B-14. SEE DETAILS ON SHEET 13.
25. INSTALL TYPE B DRYWELL PER SPOKANE COUNTY STANDARD DRAWING B-1a. SEE DETAIL ON SHEET 13.
26. INSTALL SDR 35 PVC STORM DRAIN OR APPROVED EQUAL, AND FITTINGS AS REQUIRED, PER MANUFACTURERS REQUIREMENTS AND SPECIFICATIONS. SIZE AS SPECIFIED.
27. INSTALL 4" ADS STORM DRAIN OR APPROVED EQUAL, AND FITTINGS AS REQUIRED, PER MANUFACTURERS REQUIREMENTS AND SPECIFICATIONS. ALL STORM DRAIN INSTALLED UNDER THE ASPHALT IN THE STREET PRISM TO BE PVC AND TRAFFIC RATED.
28. INSTALL RAIN GUTTER DOWNSPOUT WITH 4" ADS CONNECTION PER APPROVED ARCHITECTURAL PLANS (BY OTHERS). CONNECT TO STORM DRAIN PIPE. CONTRACTOR TO SUBMIT SPECIFICATIONS. SEE DETAIL, THIS SHEET.
29. INSTALL 6" (-) ROCK RIP RAP OUTFALL PER DETAIL, THIS SHEET.



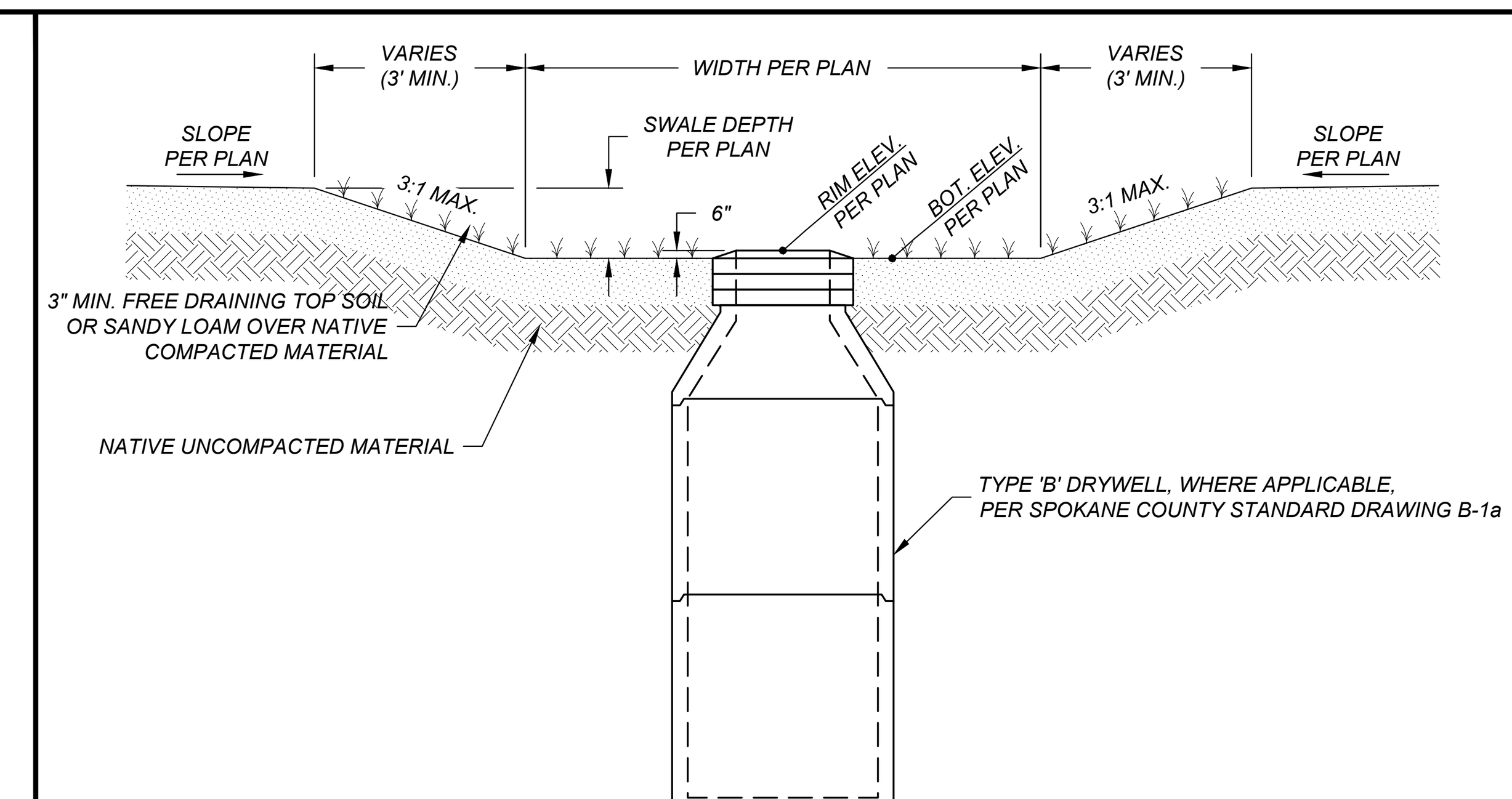
NOTES:
1. STORM SEWER CONNECTIONS NOT IN STRUCTURES SHALL BE WYE CONNECTIONS WITH STANDARD FITTINGS AS REQUIRED.
2. CONTRACTOR TO VERIFY DOWNSPOUT LOCATIONS WITH APPROVED ARCHITECTURAL PLANS, AND AS SHOWN HEREON.

DOWNSPOUT DETAIL (28)
N.T.S.



NOTE:
1. ALL STORM DRAIN OUTLETS SHALL HAVE ROCK RIP RAP OUTFALL AS SHOWN.

RIP RAP OUTFALL DETAIL (29)
N.T.S.



NOTES:
1. DRY WELLS SHALL BE CONSTRUCTED PER SPOKANE COUNTY STANDARD DRAWING B-1a AND THE STORMWATER MANAGEMENT MANUAL FOR EASTERN WASHINGTON.
2. DO NOT COMPACT SWALE BACKFILL.
3. SWALE SHALL BE HYDROSEEDED WITH APPROPRIATE GRASS MIXTURE IN ACCORDANCE WITH STORMWATER MANAGEMENT MANUAL FOR EASTERN WASHINGTON.

TYPICAL GRASSY SWALE DETAIL (22)
N.T.S.

LEGEND
2280 — EXISTING 1' CONTOURS

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LAKE CITY ENGINEERING
3909 N. SCHREIBER WAY, STE. 4
COEUR D'ALENE, IDAHO 83815
PHONE: 208-676-0230

DREW CRANDELL DITTMAN — STATE OF WASHINGTON — REGISTERED PROFESSIONAL ENGINEER — 46570 — 6/20/16

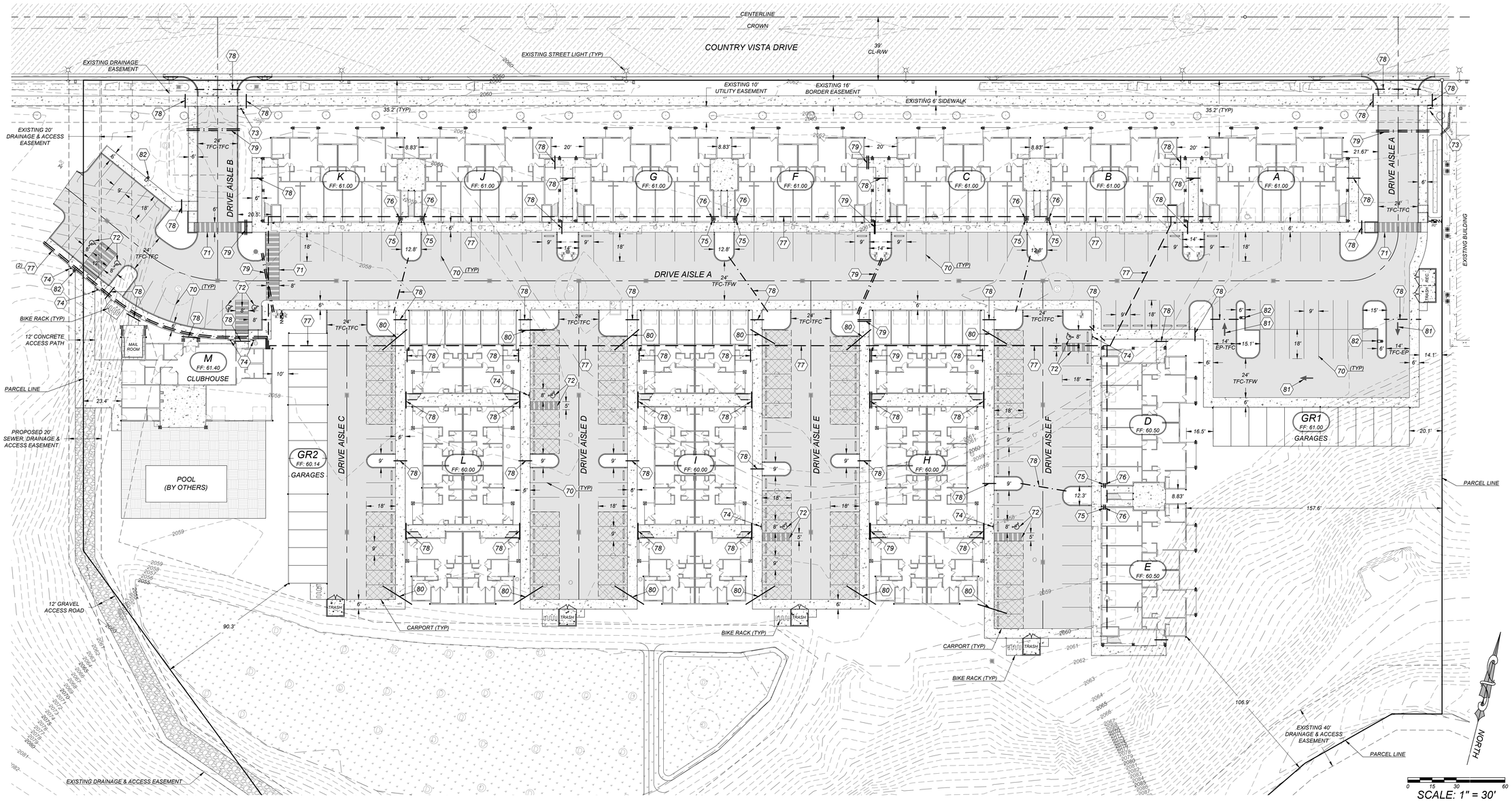
LEGACY VILLAS

STORMWATER PLAN
LIBERTY LAKE, WASHINGTON

ONE INCH — AT FULL SIZE IF NOT ONE INCH SCALE ACCORDINGLY

DESIGNED BY:	DCD
DRAFTED BY:	DLH
DATE:	6/20/2016
JOB NO:	LCE 15-072

10 / 14



STRIPING, SIGNAGE & CONDUIT KEY NOTES:

70. INSTALL 4" PARKING STRIPE PER WSDOT STANDARD PLAN M-17.10-02 AND CURRENT MUTCD REQUIREMENTS.
71. INSTALL CROSS WALK STRIPING PER CURRENT MUTCD REQUIREMENTS.
72. INSTALL ADA STRIPING PER WSDOT STANDARD PLAN M-17.10-02 AND CURRENT MUTCD REQUIREMENTS.
73. INSTALL STREET STOP SIGN PER SPOKANE COUNTY STANDARD DRAWING A-16.
74. INSTALL ADA SIGN PER DETAIL THIS SHEET.
75. INSTALL 4" CONDUIT AT 18" BURY DEPTH FOR WATER SERVICE.
76. INSTALL 4" CONDUIT AT 18" BURY DEPTH FOR FIRE LINE.
77. INSTALL 1" CONDUIT AT 18" BURY DEPTH FOR FIRE CONTROLS.
78. INSTALL 4" CONDUIT AT 18" BURY DEPTH FOR IRRIGATION MAIN.
79. INSTALL (2) 4" CONDUITS AT 18" BURY DEPTH FOR IRRIGATION MAIN.
80. INSTALL 2" CONDUIT AT 18" BURY DEPTH FOR ELECTRICAL FROM BUILDING PANEL TO CARPORTS. COORDINATE LOCATION WITH ARCHITECTURAL PLANS.
81. INSTALL DIRECTIONAL PAVEMENT MARKINGS PER CURRENT MUTCD REQUIREMENTS.
82. INSTALL LED STREET LIGHT PER ARCHITECTURAL PLANS (BY OTHERS).

NOTES:

1. SITE ADDRESSING SHALL BE PLACED ON THE BUILDING SO THAT IT IS VISIBLE TO EMERGENCY SERVICES. CONTRACTOR TO COORDINATE WITH SVFD FOR EXACT LOCATION AND SPECIFICATIONS.
2. CONTRACTOR TO COORDINATE KNOX BOX LOCATIONS WITH SVFD.
3. CONTRACTOR TO INSTALL 8'x10' TRASH ENCLOSURE PER WASTE WATER MANAGEMENT REQUIREMENTS. CONTRACTOR TO INSTALL SIGHT OBSCURING FENCE/WALL PER CITY OF LIBERTY LAKE REQUIREMENTS PER MUNICIPAL CODE 10-3C-3H.
4. INSTALL BIKE RACK PER THE APPROVAL OF THE OWNER.

PARKING CALCULATIONS:

REQUIRED PER 10-3D-3:

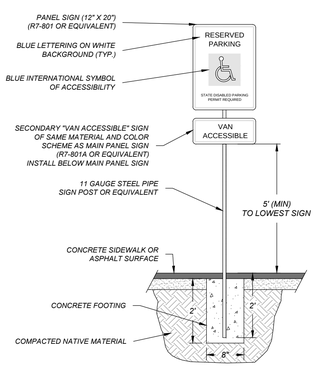
PARKING REQUIREMENTS:

1 BED (>500 sf) =	1 SPACE	(0 x 1 = 0 SPACE)
1 BED (<500 sf) =	1.5 SPACES	(27 x 1.75 = 126 SPACES)
2 BED =	1.75 SPACES	(72 x 2 = 54 SPACES)
3 BED =	2 SPACES	(27 x 2 = 54 SPACES)
REQUIRED PARKING:		220.5 SPACES
BICYCLE PARKING:	1 SPACE PER UNIT (126)	
	- GARAGE SPACES (97)	
TOTAL REQUIRED:		30 SPACES

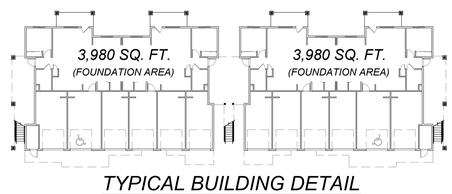
PROVIDED:

STANDARD PARKING SPACES:	144
COMPACT PARKING SPACES:	0
ADA PARKING SPACES:	8 (4 VAN ACCESSIBLE)
IN-FRONT BUILDING SPACES:	54
TOTAL SPACES:	206
ATTACHED GARAGES:	72
DETACHED GARAGES:	25
TOTAL PARKING:	303
BICYCLE PARKING:	5 RACKS / 9 SPACES
TOTAL BIKE PARKING:	45 SPACES

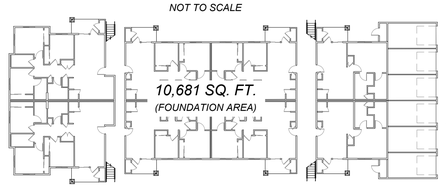
SEE GRADING PLAN FOR ADA PARKING DETAILS.



ADA SIGNAGE DETAIL
NTS



TYPICAL BUILDING DETAIL
NOT TO SCALE



TYPICAL BUILDING DETAIL
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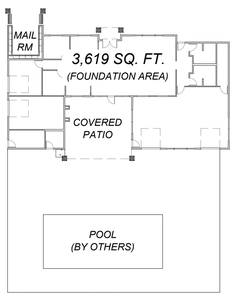

CLUBHOUSE DETAIL
NOT TO SCALE

FOR INFORMATION PURPOSES ONLY

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NO.	DESCRIPTION	INITIAL	DATE

LANE CITY ENGINEERING
3909 N. SCHREIBER WAY, STE 4
COEUR D'ALENE, IDAHO 83815
PHONE: 208.676.4263

DAVID CHANDLER DITMAN — STATE OF WASHINGTON — 23570 — REGISTERED PROFESSIONAL ENGINEER — 12/16

LEGACY VILLAS

STRIPING, SIGNAGE AND CONDUIT PLAN
LIBERTY LAKE, WASHINGTON

ONE INCH
AT FULL SIZE IF NOT ONE INCH SCALE ACCORDINGLY

DESIGNED BY:	DCD
DRAFTED BY:	DLH
DATE:	6/20/2016
JOB NO:	LCE 15-072

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14

hoppe, Plotted: Jun 20, 2016 - 7:08pm, L:\2015\15-072\ACAD\15-072-CONST.dwg

GENERAL NOTES:

1. ALL WORK SHALL CONFORM TO THE CURRENT EDITION OF THE "SPOKANE COUNTY ROAD STANDARDS" (LATEST EDITION) AND THE WASHINGTON STATE DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR ROAD, BRIDGE, AND MUNICIPAL CONSTRUCTION" (LATEST EDITION).
2. THE CONTRACTOR SHALL NOTIFY THE APPROPRIATE UTILITY COMPANY PRIOR TO STARTING WORK NEAR ANY FACILITIES AND SHALL COORDINATE HIS WORK WITH COMPANY REPRESENTATIVES. ALL UTILITY SERVICES SHALL BE INSTALLED UNDERGROUND, FOR EXISTING UTILITY LOCATIONS, CONTACT "CALL BEFORE YOU DIG" AT 1-800-428-4950 AT LEAST 48 HOURS PRIOR TO STARTING ANY EXCAVATIONS.
3. WORK SHALL NOT BEGIN UNTIL A NOTICE TO PROCEED IS ISSUED BY THE CITY OF LIBERTY LAKE.
4. THE CONTRACTOR SHALL NOTIFY THE CITY OF LIBERTY LAKE ENGINEERING INSPECTOR 48 HOURS PRIOR TO STARTING WORK.
5. A PERMIT SHALL BE OBTAINED FROM THE CITY ENGINEERING DIVISION FOR WORK WITHIN ANY EXISTING CITY RIGHT-OF-WAY.
6. THE CONTRACTOR SHALL HAVE AN APPROVED SET OF IMPROVEMENT PLANS ON THE JOB SITE AT ALL TIMES.
7. CONSTRUCTION EXPANSION JOINTS ARE REQUIRED IN CURB AND GUTTER AT RETURNS AND AT DRIVEWAY INTERSECTIONS PER CITY STANDARDS. WEAKENED PLANE JOINTS ARE REQUIRED EVERY TWENTY (20) FEET PER CITY STANDARDS.
8. ALL UNDERGROUND UTILITY LATERALS SHALL BE INSTALLED BEFORE CONSTRUCTION OF CURBS, CROSS GUTTERS, OR SURFACING OF THE STREETS.
9. WHERE TRENCHES ARE WITHIN PUBLIC RIGHT-OF-WAYS OR EASEMENTS, COMPACTION TEST RESULTS SHALL BE SUBMITTED TO THE ENGINEER OF WORK AND THE CITY ENGINEER BY A QUALIFIED ENGINEER WHICH CERTIFY THAT TRENCH BACKFILL WAS COMPACTED AS REQUIRED IN ACCORDANCE WITH CITY OF LIBERTY LAKE SPECIFICATIONS.
10. ALL TESTING REQUIRED BY THE CITY OF LIBERTY LAKE WILL BE AT NO COST TO THE CITY.
11. ALL OPERATIONS CONDUCTED ON THE PREMISES, INCLUDING THE WARMING UP, REPAIR, ARRIVAL, DEPARTURE OR RUNNING OF TRUCKS, EARTH MOVING EQUIPMENT, CONSTRUCTION EQUIPMENT AND ANY OTHER ASSOCIATED EQUIPMENT SHALL BE LIMITED TO THE PERIOD BETWEEN 7:00 A.M. AND 5:00 P.M. EVERYDAY UNLESS OTHERWISE APPROVED BY THE CITY OF LIBERTY LAKE.
12. ALL EXISTING IMPROVEMENTS INCLUDING CURB AND GUTTERS, SIDEWALKS, ASPHALT, CONCRETE OR P.C.C. PAVING, WHICH ARE BEING JOINED OR MATCHED IN CONNECTION WITH THIS PROJECT SHALL BE JOINED OR MATCHED IN A MANNER SATISFACTORY TO THE CITY ENGINEER, INCLUDING NECESSARY SAWCUTTING, REMOVAL, REPLACEMENT AND CAPPING.
13. NO REVISIONS SHALL BE MADE TO THESE PLANS WITHOUT THE APPROVAL OF THE CITY ENGINEER AND THE ENGINEER OF RECORD.
14. PRIOR TO THE COMMENCEMENT OF ANY WORK ON THESE PLANS, A PRE-CONSTRUCTION CONFERENCE SHALL BE HELD WITH THE CITY OF LIBERTY LAKE, THE GENERAL CONTRACTOR, THE ENGINEER OF RECORD, AND ALL APPROPRIATE UTILITIES.
15. IN THE EVENT OF ANY UNFORESEEN CONDITION NOT COVERED BY THESE PLANS AND SPECIFICATIONS ARE ENCOUNTERED DURING CONSTRUCTION, THE ENGINEER SHALL BE IMMEDIATELY NOTIFIED TO PROVIDE DIRECTION TO THE CONTRACTOR.
16. WITHIN 48-HOURS FOLLOWING AWARD OF CONTRACT, THE CONTRACTOR SHALL PREPARE AND SUBMIT THEIR PROPOSED TRAFFIC CONTROL PLAN, DUST ABATEMENT PLAN, AND CONSTRUCTION CLEAN-UP PLAN TO THE CITY AND THE ENGINEER. ALL PLANS REQUIRE APPROVAL BY BOTH THE CITY AND ENGINEER AND NO WORK SHALL COMMENCE UNTIL ALL PERMITS ARE ISSUED AND ALL APPROVED TRAFFIC CONTROL DEVICES ARE IN PLACE.
17. ANY MODIFICATIONS TO THE EXISTING TRAFFIC PATTERN AND/OR PROPOSED TRAFFIC CONTROL PLAN SHALL BE PREPARED BY THE CONTRACTOR AND RESUBMITTED TO THE CITY AND THE ENGINEER FOR APPROVAL. UNLESS SPECIFIED OTHERWISE, THE CONTRACTOR SHALL PROVIDE AT LEAST 48-HOURS FOR THE CITY AND ENGINEER TO REVIEW AND RESPOND TO SAID TRAFFIC CONTROL PLAN MODIFICATION PRIOR TO ANY DISRUPTION OF SAID TRAFFIC PATTERN.
18. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR IMPLEMENTING AND MAINTAINING ALL TRAFFIC CONTROL SIGNS, CONES, BARRICADES, DETOUR ROUTES, AND/OR FLAGGING, ETC., REQUIRED IN ACCORDANCE TO THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (M.U.T.C.D.), CURRENT EDITION, ON A DAILY BASIS INCLUDING WEEKENDS AND HOLIDAYS.
19. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR IMPLEMENTING AND MAINTAINING ALL APPROVED DUST ABATEMENT PROGRAMS WITHIN PROJECT LIMITS ON A DAILY BASIS INCLUDING WEEKENDS AND HOLIDAYS.
20. CONTRACTOR TO SUPPLY THE ENGINEER WITH THE FOLLOWING INFORMATION PRIOR TO THE ENGINEER SUBMITTING AS-BUILTS:
    A. THE STATIONING OF ALL WATER SERVICE CONNECTIONS ON THE MAINLINE.
    B. THE STATIONING OF ALL SEWER SERVICE CONNECTIONS ON THE MAINLINE ALONG WITH INVERTS, OFFSETS AND STATIONING OF THE END OF THE SERVICE.
    C. INFORMATION REGARDING IMPROVEMENTS NOT CONSTRUCTED IN SUBSTANTIAL ACCORDANCE WITH THE APPROVED IMPROVEMENT PLANS.
21. IN THE EVENT THAT ANY UNFORESEEN CONDITIONS NOT COVERED BY THESE NOTES ARE ENCOUNTERED DURING GRADING OR OTHER OPERATIONS, THE ENGINEER SHALL BE IMMEDIATELY NOTIFIED FOR DIRECTION.
22. THE CONTRACTOR SHALL MAINTAIN THE STREETS, SIDEWALKS, AND ALL OTHER PUBLIC RIGHT-OF-WAY IN A CLEAN, SAFE AND USEABLE CONDITION. ALL SPILLS OF SOIL, ROCK OR CONSTRUCTION DEBRIS SHALL BE PROMPTLY REMOVED FROM THE PUBLICLY OWNED PROPERTY DURING CONSTRUCTION AND UPON COMPLETION OF THE PROJECT. ALL ADJACENT PROPERTY, PRIVATE OR PUBLIC SHALL BE MAINTAINED IN A CLEAN, SAFE AND USEABLE CONDITION.
23. THE CONTRACTOR SHALL TAKE ALL NECESSARY AND PROPER PRECAUTIONS TO PROTECT ADJACENT PROPERTIES FROM ANY AND ALL DAMAGE THAT MAY OCCUR FROM STORM WATER RUNOFF AND/OR DEPOSITION OF DEBRIS RESULTING FROM ANY AND ALL WORK IN CONNECTION WITH SUBDIVISION CONSTRUCTION.
24. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY HORIZONTAL AND VERTICAL TRANSITION BETWEEN NEW CONSTRUCTION AND EXISTING SURFACES TO PROVIDE FOR PROPER DRAINAGE AND OF INGRESS AND EGRESS TO SAID CONSTRUCTION. EXTENT OF TRANSITIONS TO BE DETERMINED BY THE CITY ENGINEER.
25. EXISTING UTILITIES ARE LOCATED ON THE PLANS FOR THE CONVENIENCE OF THE CONTRACTOR ONLY. THE CONTRACTOR SHALL BEAR FULL RESPONSIBILITY FOR THE PROTECTION OF ALL EXISTING UTILITIES AND THE ENGINEER BEARS NO RESPONSIBILITY FOR UTILITIES NOT SHOWN ON THE PLANS OR NOT IN THE LOCATION SHOWN ON THE PLANS. THIS INCLUDES ALL SERVICE LATERALS OF ANY KIND.
26. PROTECTION AND REPLACEMENT OF SURVEY MONUMENTS OR PROPERTY PINS NOT DELINEATED ON THE CONTRACT DRAWINGS SHALL BE THE CONTRACTOR'S RESPONSIBILITY.
27. ENGINEER OF RECORD MAKES NO GUARANTEE OF TOPOGRAPHY SHOWN HEREON. CONTRACTOR TO FIELD VERIFY AT HIS EXPENSE ALL TOPOGRAPHY PRIOR TO THE START OF ANY WORK HEREON. CONTRACTOR SHOULD IMMEDIATELY NOTIFY THE ENGINEER OF RECORD IF ANY DISCREPANCIES ARE FOUND.
28. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IN WRITING FOR ANY CONSTRUCTION STAKING REQUESTS WITH 48 HOURS NOTICE.

SUPPLEMENTAL CONSTRUCTION NOTES:

1. THE CONTRACTOR IS REQUIRED TO KEEP ALL EQUIPMENT, PERSONNEL AND MATERIALS CONFINED TO PROJECT LIMITS AS SHOWN HEREIN. UNLESS SPECIFIED OTHERWISE, ALL PROPERTY AND DISTURBED AREAS DAMAGED OUTSIDE THE PROJECT LIMITS SHALL BE RESTORED BY THE CONTRACTOR TO EQUAL OR BETTER CONDITIONS AND APPROVED BY THE ENGINEER AT NO ADDITIONAL EXPENSE TO THE CITY AND THE ENGINEER.
2. THE CONTRACTOR SHALL NOTIFY THE APPROPRIATE UTILITY COMPANIES PRIOR TO STARTING WORK NEAR ANY FACILITIES AND SHALL BE SOLELY RESPONSIBLE FOR COORDINATING THEIR WORK WITH UTILITY COMPANY REPRESENTATIVES.
3. THE EXISTENCE AND LOCATION OF UTILITIES SHOWN HEREIN ARE APPROXIMATE AND BASED ON THE BEST AVAILABLE INFORMATION. THEY ARE PROVIDED FOR THE CONVENIENCE OF THE CONTRACTOR ONLY AND THE CITY AND ENGINEER BEARS NO RESPONSIBILITY FOR UTILITIES NOT SHOWN ON THESE PLANS OR NOT IN THE LOCATION SHOWN HEREIN. THE CONTRACTOR SHALL CONTACT "ONE CALL" AT 811 AT LEAST 48 HOURS PRIOR TO STARTING ANY EXCAVATION WORK AND SHALL BE SOLELY RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING UTILITIES WITHIN THE PROJECT LIMITS.
4. THE CONTRACTOR SHALL STOP WORK AND IMMEDIATELY NOTIFY UTILITY COMPANY REPRESENTATIVES OF ANY AND ALL DAMAGES TO EXISTING UTILITIES THAT HAS OCCURRED DURING CONSTRUCTION. UNLESS SPECIFIED OTHERWISE, ALL UTILITY DAMAGES SHALL BE RESTORED TO EQUAL OR BETTER CONDITIONS AND APPROVED BY THE UTILITY COMPANY REPRESENTATIVES AT NO ADDITIONAL COST TO THE CITY OR THE ENGINEER.
5. IN THE EVENT OF ANY UNFORESEEN CONDITION NOT COVERED BY THESE PLANS AND SPECIFICATIONS ARE ENCOUNTERED DURING CONSTRUCTION, THE ENGINEER SHALL BE IMMEDIATELY NOTIFIED TO PROVIDE DIRECTION TO THE CONTRACTOR.
6. UNLESS SPECIFIED OTHERWISE, THE CONTRACTOR SHALL REPAIR OR REPLACE ALL EXISTING STRUCTURES, FENCES, MAILBOXES, TREES, LANDSCAPING, DRIVEWAYS OR ANY OTHER PRIVATE PROPERTY THAT BECOMES DAMAGED OR REMOVED BY THE CONTRACTOR DURING CONSTRUCTION TO ORIGINAL CONDITION OR BETTER.
7. THE CONTRACTOR SHALL MAINTAIN ALL ADJACENT STREETS, CURB AND GUTTERS, SWALES, SIDEWALKS, OR ANY OTHER PUBLICLY OR PRIVATELY OWNED PROPERTY WITHIN THE PROJECT LIMITS IN A CLEAN, SAFE, AND USABLE CONDITION. ALL SOIL, ROCKS EQUIPMENT AND MATERIALS AND/OR OTHER CONSTRUCTION DEBRIS SHALL BE PROMPTLY REMOVED AND DISPOSED OF BY THE CONTRACTOR DURING CONSTRUCTION AND AT THE COMPLETION OF THE PROJECT.
8. PRIOR TO THE PRE-CONSTRUCTION MEETING, THE CONTRACTOR SHALL PREPARE AND SUBMIT THEIR PROPOSED CONSTRUCTION SCHEDULE, TRAFFIC CONTROL PLAN, DUST ABATEMENT PROGRAM, AND CONSTRUCTION CLEAN UP PLAN TO THE CITY ENGINEER AND TRAFFIC CONTROL PLANS TO WASHINGTON STATE DEPARTMENT OF TRANSPORTATION ENGINEER FOR WORK WITHIN THE STATE RIGHT OF WAY. NO WORK SHALL BEGIN UNTIL AFOREMENTIONED INFORMATION HAS BEEN APPROVED BY BOTH THE CITY ENGINEER AND WASHINGTON STATE DEPARTMENT OF TRANSPORTATION FOR WORK WITHIN THE STATE RIGHT OF WAY.
9. UNLESS APPROVED BY THE CITY AND THE ENGINEER, THE CONTRACTOR SHALL ADHERE TO THEIR SUBMITTED CONSTRUCTION SCHEDULE.
10. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR IMPLEMENTING AND MAINTAINING ALL APPROVED TRAFFIC CONTROL DEVICES, DETOURED ROUTES, AND FLAGGING OPERATIONS IN ACCORDANCE TO THE LATEST EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) ON A DAILY BASIS INCLUDING WEEKENDS AND HOLIDAYS. ANY MODIFICATIONS TO THE APPROVED TRAFFIC CONTROL PLAN SHALL BE APPROVED BY THE CITY ENGINEER OR THE WASHINGTON STATE DEPARTMENT OF TRANSPORTATION PRIOR TO IMPLEMENTATION FOR WORK BEING CONDUCTED WITHIN THE STATE RIGHT OF WAY.
11. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR IMPLEMENTING AND MAINTAINING THE APPROVED DUST ABATEMENT PROGRAM ON A DAILY BASIS INCLUDING WEEKENDS AND HOLIDAYS.
12. UNLESS SPECIFIED OTHERWISE, THE CONTRACTOR SHALL COORDINATE WITH ALL LOCAL SOLID WASTE MANAGERS AND PROVIDE TEMPORARY PROVISIONS FOR ALL LOCAL SOLID WASTE PERSONNEL AND EQUIPMENT TO ACCESS TRASH AND RECYCLING RECEPTACLES BELONGING TO ALL AFFECTED RESIDENTS AND BUSINESSES WITHIN PROJECT LIMITS UNTIL THE CLOSE OF THE PROJECT.
13. UNLESS SPECIFIED OTHERWISE, THE CONTRACTOR SHALL COORDINATE WITH ALL SCHOOL DISTRICT TRANSPORTATION DIRECTORS AND PROVIDE TEMPORARY PROVISIONS FOR ALTERNATIVE BUS ROUTES WITHIN PROJECT LIMITS UNTIL THE CLOSE OF THE PROJECT.
14. UNLESS SPECIFIED OTHERWISE, THE CONTRACTOR SHALL COORDINATE WITH THE LOCAL POST MASTER AND PROVIDE TEMPORARY PROVISIONS FOR TEMPORARY MAIL DELIVERY ROUTES WITHIN PROJECT LIMITS UNTIL THE CLOSE OF THE PROJECT.
15. THE EXISTENCE AND LOCATION OF PROPERTY, EASEMENT AND RIGHT-OF-WAY LINES SHOWN HEREIN ARE APPROXIMATE AND BASED ON THE BEST AVAILABLE INFORMATION. THEY ARE PROVIDED FOR THE CONVENIENCE OF THE CONTRACTOR ONLY AND THE CITY AND ENGINEER BEARS NO RESPONSIBILITY FOR LINES NOT SHOWN ON THESE PLANS OR NOT IN THE LOCATION SHOWN HERE0N.
16. ALL BACKFILL SLOPES BEHIND NEW CURB AND GUTTER, SIDEWALK, OR OTHER IMPROVEMENTS SHALL BE A MAXIMUM OF 3:1 AND SHALL BE INSTALLED WITH LIKE MATERIALS.
17. ALL OTHER DISTURBED AREAS SHALL BE HYDROSEEDED WITH AN APPROPRIATE MIXTURE AS APPROVED BY THE CITY ENGINEER UNLESS OTHERWISE NOTED HEREON.
18. ALL DAMAGED IRRIGATION SYSTEMS SHALL BE REPAIRED IN KIND AND APPROVED BY THE CITY ENGINEER PRIOR TO ACCEPTANCE. ANY EXISTING SWALES THAT ARE DISTURBED, RE-GRADED, OR EXTENDED SHALL HAVE THE EXISTING IRRIGATION SYSTEM REPAIRED AND/OR ALTERED TO ACCOMMODATE THE NEW SWALE.
19. ALL DRIVEWAY AND URBAN APPROACH LOCATIONS SHALL BE APPROVED BY THE CITY ENGINEER PRIOR TO CONSTRUCTION OF CURB AND GUTTER.
20. CURB STRING LINE SHALL BE APPROVED BY THE CITY ENGINEER AND THE ENGINEER OF RECORD PRIOR TO CONSTRUCTION OF CURB AND GUTTER OR SIDEWALK.
21. ALL DRIVEWAY LOCATIONS TO BE APPROVED BE ENGINEERING DEPARTMENT PRIOR TO BUILDING PERMIT ISSUANCE.
22. THE INTENT OF THE DESIGN PLANS AND CALCULATIONS CONTAINED HEREIN IS TO COMPLY WITH THE REQUIREMENTS OF THE 2010 ADA STANDARDS OF ACCESSIBLE DESIGN. MODIFICATIONS MAY BE NECESSARY BASED ON FIELD/ACTUAL CONDITIONS TO ENSURE THAT ALL CONSTRUCTION MEETS THESE STANDARDS AS REQUIRED. THE CONTRACTOR AND ALL SUBCONTRACTORS SHALL BE FAMILIAR WITH THESE STANDARDS AND ARE SOLELY RESPONSIBLE TO WARRANT THAT ALL CONSTRUCTION ACTIVITY IS IN ACCORDANCE WITH THESE STANDARDS.
23. CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR COORDINATION AND NOTIFICATION OF AT LEAST 48 HOURS TO WASHINGTON STATE DEPARTMENT OF TRANSPORTATION FOR WORK ACTIVITIES TO BE CONDUCTED WITHIN THE HIGHWAY RIGHT-OF WAY SUCH AS DEMOLITION, CURBING, SIDEWALK, PAVING, OR SIGNAGE INSTALLATION.

SUPPLEMENTAL ESC NOTES:

1. THE FOLLOWING CONSTRUCTION SEQUENCE SHALL BE FOLLOWED IN ORDER TO BEST MINIMIZE THE POTENTIAL FOR EROSION AND SEDIMENTATION CONTROL PROBLEMS:
    (A) CLEAR AND GRUB SUFFICIENTLY FOR INSTALLATION OF TEMPORARY ESC BMPS;
    (B) INSTALL TEMPORARY ESC BMPS, CONSTRUCTING SEDIMENT TRAPPING BMPS AS ONE OF THE FIRST STEPS PRIOR TO GRADING;
    (C) CLEAR, GRUB AND ROUGH GRADE FOR ROADS, TEMPORARY ACCESS POINTS AND UTILITY LOCATIONS;
    (D) STABILIZE ROADWAY APPROACHES AND TEMPORARY ACCESS POINTS WITH THE APPROPRIATE CONSTRUCTION ENTRY BMP;
    (E) CLEAR, GRUB AND GRADE INDIVIDUAL LOTS OR GROUPS OF LOTS;
    (F) TEMPORARILY STABILIZE, THROUGH RE-VEGETATION OR OTHER APPROPRIATE BMPS, LOTS OR GROUPS OF LOTS IN SITUATIONS WHERE SUBSTANTIAL CUT OR FILL SLOPES ARE A RESULT OF THE SITE GRADING;
    (G) CONSTRUCT ROADS, BUILDINGS, PERMANENT STORMWATER FACILITIES (I.E. INLETS, PONDS, UIC FACILITIES, ETC.);
    (H) PROTECT ALL PERMANENT STORMWATER FACILITIES UTILIZING THE APPROPRIATE BMPS;
    (I) INSTALL PERMANENT ESC CONTROLS, WHEN APPLICABLE; AND,
    (J) REMOVE TEMPORARY ESC CONTROLS WHEN:
2. PERMANENT ESC CONTROLS, WHEN APPLICABLE, HAVE BEEN COMPLETELY INSTALLED;
3. ALL LAND-DISTURBING ACTIVITIES THAT HAVE THE POTENTIAL TO CAUSE EROSION OR SEDIMENTATION PROBLEMS HAVE CEASED; AND,
4. VEGETATION HAD BEEN ESTABLISHED IN THE AREAS NOTED AS REQUIRING VEGETATION ON THE ACCEPTED ESC PLAN ON FILE WITH THE LOCAL JURISDICTION.
5. INSPECT ALL ROADWAYS, AT THE END OF EACH DAY, ADJACENT TO THE CONSTRUCTION ACCESS ROUTE. IF IT IS EVIDENT THAT SEDIMENT HAS BEEN TRACKED OFF SITE AND/OR BEYOND THE ROADWAY APPROACH, CLEANING IS REQUIRED.
6. IF SEDIMENT REMOVAL IS NECESSARY PRIOR TO STREET WASHING, IT SHALL BE REMOVED BY SHOVELING OR PICKUP SWEEPING AND TRANSPORTED TO A CONTROLLED SEDIMENT DISPOSAL AREA.
7. IF STREET WASHING IS REQUIRED TO CLEAN SEDIMENT TRACKED OFF SITE, ONCE SEDIMENT HAS BEEN REMOVED, STREET WASH WASTEWATER SHALL BE CONTROLLED BY PUMPING BACK ON-SITE OR OTHERWISE PREVENTED FROM DISCHARGING INTO SYSTEMS TRIBUTARY TO WATERS OF THE STATE.
8. RESTORE CONSTRUCTION ACCESS ROUTE EQUAL TO OR BETTER THAN THE PRE-CONSTRUCTION CONDITION.
9. RETAIN THE DUFF LAYER, NATIVE TOPSOIL, AND NATURAL VEGETATION IN AN UNDISTURBED STATE TO THE MAXIMUM EXTENT PRACTICAL.
10. INSPECT SEDIMENT CONTROL BMPS WEEKLY AT A MINIMUM, DAILY DURING A STORM EVENT, AND AFTER ANY DISCHARGE FROM THE SITE (STORMWATER OR NON-STORMWATER). THE INSPECTION FREQUENCY MAY BE REDUCED TO ONCE A MONTH IF THE SITE IS STABILIZED AND INACTIVE.
11. CONTROL FUGITIVE DUST FROM CONSTRUCTION ACTIVITY IN ACCORDANCE WITH THE STATE AND/OR LOCAL AIR QUALITY CONTROL AUTHORITIES WITH JURISDICTION OVER THE PROJECT AREA.
12. STABILIZE EXPOSED UN-WORKED SOILS (INCLUDING STOCKPILES), WHETHER AT FINAL GRADE OR NOT, WITHIN 10 DAYS DURING THE REGIONAL DRY SEASON (JULY 1 THROUGH SEPTEMBER 30) AND WITHIN 5 DAYS DURING THE REGIONAL WET SEASON (OCTOBER 1 THROUGH JUNE 30). SOILS MUST BE STABILIZED AT THE END OF A SHIFT BEFORE A HOLIDAY WEEKEND IF NEEDED BASED ON THE WEATHER FORECAST. THIS TIME LIMIT MAY ONLY BE ADJUSTED BY A LOCAL JURISDICTION WITH A "QUALIFIED LOCAL PROGRAM," IF IT CAN BE DEMONSTRATED THAT THE RECENT PRECIPITATION JUSTIFIES A DIFFERENT STANDARD AND MEETS THE REQUIREMENTS SET FORTH IN THE CONSTRUCTION STORMWATER GENERAL PERMIT.
13. PROTECT INLETS, DRYWELLS, CATCH BASINS AND OTHER STORMWATER MANAGEMENT FACILITIES FROM SEDIMENT, WHETHER OR NOT FACILITIES ARE OPERABLE.
14. KEEP ROADS ADJACENT TO INLETS CLEAN.
15. INSPECT INLETS WEEKLY AT A MINIMUM AND DAILY DURING STORM EVENTS.
16. CONSTRUCT STORMWATER CONTROL FACILITIES (DETENTION/RETENTION STORAGE POND OR SWALES) BEFORE GRADING BEGINS. THESE FACILITIES SHALL BE OPERATIONAL BEFORE THE CONSTRUCTION OF IMPERVIOUS SITE IMPROVEMENTS.
17. STOCKPILE MATERIALS (SUCH AS TOPSOIL) ON SITE, KEEPING OFF OF ROADWAY AND SIDEWALKS.
18. COVER, CONTAIN AND PROTECT ALL CHEMICALS, LIQUID PRODUCTS, PETROLEUM PRODUCT, AND NON-INERT WASTES PRESENT ON SITE FROM VANDALISM (SEE CHAPTER 173-304 WAC FOR THE DEFINITION OF INERT WASTE), USE SECONDARY CONTAINMENT FOR ON-SITE FUELING TANKS.
19. CONDUCT MAINTENANCE AND REPAIR OF HEAVY EQUIPMENT AND VEHICLES INVOLVING OIL CHANGES, HYDRAULIC SYSTEM REPAIRS, SOLVENT AND DE-GREASING OPERATIONS, FUEL TANK DRAIN DOWN AND REMOVAL, AND OTHER ACTIVITIES THAT MAY RESULT IN DISCHARGE OR SPILLAGE OF POLLUTANTS TO THE GROUND OR INTO STORMWATER RUNOFF USING SPILL PREVENTION MEASURES, SUCH AS DRIP PANS. CLEAN ALL CONTAMINATED SURFACES IMMEDIATELY FOLLOWING ANY DISCHARGE OR SPILL INCIDENT. IF RAINING OVER EQUIPMENT OR VEHICLE, PERFORM EMERGENCY REPAIRS ON SITE USING TEMPORARY PLASTIC BENEATH THE VEHICLE.
20. CONDUCT APPLICATION OF AGRICULTURAL CHEMICALS, INCLUDING FERTILIZERS AND PESTICIDES, IN SUCH A MANNER, AND AT APPLICATION RATES, THAT INHIBITS THE LOSS OF CHEMICALS INTO STORMWATER RUNOFF FACILITIES. AMEND MANUFACTURER'S RECOMMENDED APPLICATION RATES AND PROCEDURES TO MEET THIS REQUIREMENT, IF NECESSARY.
21. INSPECT ON A REGULAR BASIS (AT A MINIMUM WEEKLY AND DAILY DURING/AFTER A RUNOFF PRODUCING STORM EVENT) AND MAINTAIN ALL EROSION AND SEDIMENT CONTROL BMPS TO ENSURE SUCCESSFUL PERFORMANCE OF THE BMPS. NOTE THAT INLET PROTECTION DEVICES SHALL BE CLEANED OR REMOVED AND REPLACE BEFORE SIX INCHES OF SEDIMENT CAN ACCUMULATE.
22. REMOVE TEMPORARY ESC BMPS WITHIN 30 DAYS AFTER THE TEMPORARY BMPS ARE NO LONGER NEEDED. PERMANENTLY STABILIZE AREAS THAT ARE DISTURBED DURING THE REMOVAL PROCESS.
23. CONTRACTOR SHALL REMOVE AND DISPOSE OF SOLID WASTE OFFSITE. NO DUMPING SHALL BE PERMITTED ONSITE.
24. EROSION CONTROL INSPECTION IS REQUIRED BEFORE ANY WORK IS STARTED. CONTRACTOR TO COORDINATE WITH CITY INSPECTOR AND ENGINEER OF RECORD.

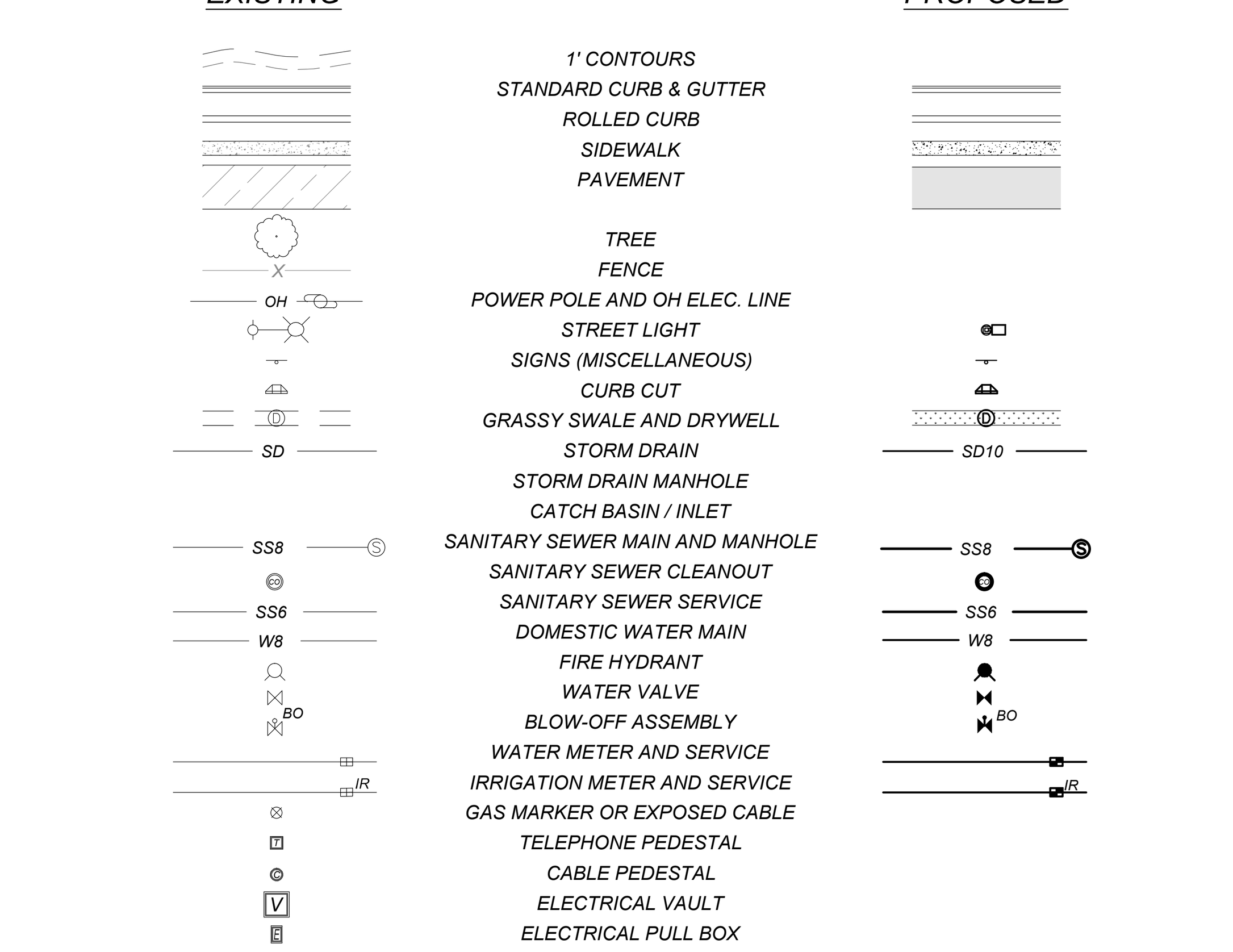
STREET & STORMWATER LEGEND

BC	BEGINNING OF CURVE	LP	LOW POINT
BCR	BEGIN CURB RETURN	MOC	MIDDLE OF CURVE
BOT	BOTTOM	ND	NOSE DOWN
BVC	BEGIN VERTICAL CURVE	OH	OVERHEAD
CB	CATCH BASIN	PED	PEDESTAL
CL	CENTERLINE	PRC	POINT OF REVERSING CURVES
CONC	CONCRETE		
EC	END OF CURVE	PVI	POINT OF INTERSECTION VERTICAL CURVE
ECR	END OF CURB RETURN		
ELEC.	ELECTRICAL	R	RIGHT
ELEV	ELEVATION	REC	RECYCLE
E'LY	EASTERLY	R/W	RIGHT OF WAY
EVC	END VERTICAL CURVE	SD	STORM DRAIN
EP	EDGE OF PAVEMENT	SF	SQUARE FEET
EX	EXISTING	ST	STREET
FL	FLOWLINE	STA	STATION
FG	FINISHED GRADE ELEVATION	ST LT	STREET LIGHT
FS	FINISHED SURFACE ELEVATION	TBC	TOP BACK CURB
GB	GRADE BREAK	TBW	TOB BACK WALK
HP	HIGH POINT	TFC	TOP FACE OF CURB
INV	INVERT ELEVATION	TFW	TOP FACE WALK
INTX	INTERSECTION	TOC	TOP OF CONCRETE
L	LEFT	TYP	TYPICAL
		(55.60)	EXISTING ELEVATION

SEWER & WATER LEGEND

BO	BLOW-OFF ASSEMBLY
CL	CENTERLINE
CL MH	CENTERLINE OF MANHOLE
CO	CLEANOUT
E	EAST
ELEV	ELEVATION
EX	EXISTING
FS	FINISHED SURFACE ELEVATION
GV	GATE VALVE
INTX	INTERSECTION
INV IN	INVERT ELEVATION IN
INV OUT	INVERT ELEVATION OUT
LF	LINEAR FEET
MH	MANHOLE
N	NORTH
R/W	RIGHT OF WAY
S	SOUTH
SD	STORM DRAIN
SSCO	SANITARY SEWER CLEANOUT
SSMH	SANITARY SEWER MANHOLE
STA	STATION
TBC	TOP BACK OF CURB
TYP	TYPICAL
W	WEST
(55.60)	EXISTING ELEVATION

LINETYPE AND SYMBOL LEGEND

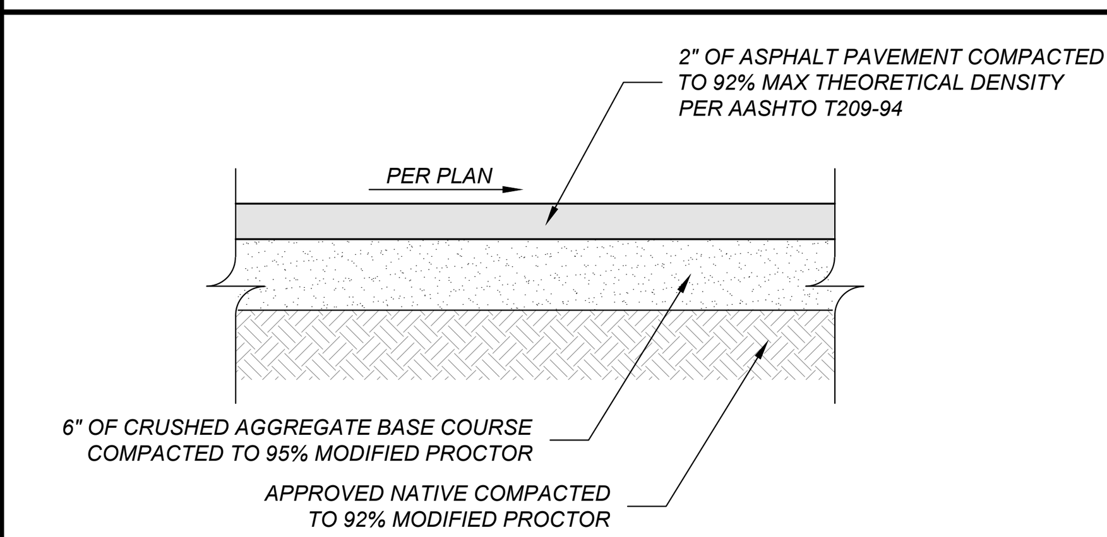


WATER SYSTEM NOTES:

1. DOMESTIC WATER SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE LIBERTY LAKE SEWER AND WATER DISTRICT STANDARD SPECIFICATIONS (LATEST EDITION).
2. WATER MAINS SHALL BE NEW DUCTILE IRON PIPE CONFORMING TO AWWA C151, STANDARD THICKNESS CLASS 50, AND SHALL HAVE CEMENT-MORTAR LINING CONFORMING TO AWWA C104. DUCTILE IRON PIPE SHALL BE JOINED USING RESTRAINED MECHANICAL JOINTS OR RESTRAINED PUSH-ON JOINTS. ALL JOINTS MUST BE RESTRAINED.
3. ALL WATER MAINS SHALL HAVE MINIMUM COVER OF 4.5 FEET. MINIMUM VERTICAL CLEARANCE BETWEEN WATER AND SEWER SHALL BE A MINIMUM OF 18". MINIMUM HORIZONTAL CLEARANCE BETWEEN WATER AND SEWER SHALL BE A MINIMUM 10'. ALL DISTANCES SHALL BE MEASURED FROM OUTSIDE OF PIPE TO OUTSIDE OF PIPE AND BE IN ACCORDANCE WITH THE WASHINGTON STATE DEPARTMENT OF HEALTH "WATER SYSTEM DESIGN MANUAL" (LATEST EDITION).
4. TONING WIRE SHALL BE INSTALLED ON ALL WATER MAINS AND SERVICES. TONING WIRE SHALL BE INSTALLED ADJACENT TO THE PIPE, AND SHALL BE LOOPED THROUGH ALL VALVE BOXES. MARKING TAPE SHALL BE INSTALLED OVER ALL WATER LINES INCLUDING SERVICE LINES. THE MARKING TAPE SHALL BE PLACED AT MID-DEPTH IN TRENCH, DIRECTLY OVER PIPE, AND SHALL EXTEND ITS FULL LENGTH. TONING WIRE AND MARKING TAPE SHALL MEET THE REQUIREMENTS OF THE LIBERTY LAKE SEWER AND WATER DISTRICT SPECIFICATIONS.
5. NO DISRUPTION OF EXISTING WATER SERVICES WHILE MAKING CONNECTION TO EXISTING MAINS SHALL BE ALLOWED WITHOUT SPECIFIC APPROVAL FROM THE LIBERTY LAKE SEWER AND WATER DISTRICT. ALL AFFECTED PROPERTIES MUST BE NOTIFIED AT LEAST 48 HOURS PRIOR TO SHUT-OFF. FAILURE TO COMPLY WITH NOTICING OR OTHER REQUIREMENTS COULD RESULT IN A STOP-WORK NOTICE, FINES, AND /OR OTHER PENALTIES.
6. NO CONNECTIONS FOR THE PURPOSE OF OBTAINING WATER SUPPLY DURING CONSTRUCTION SHALL BE MADE WITHOUT FIRST OBTAINING APPROVAL FROM THE LIBERTY LAKE SEWER AND WATER DISTRICT.
7. LOCATION AND ELEVATION OF EXISTING WATER FACILITIES SHALL BE CONFIRMED BY FIELD MEASUREMENTS AND EXCAVATION EXPLORATION BY THE CONTRACTOR PRIOR TO BEGINNING OF NEW WORK.
8. THE ENGINEERING INSPECTOR SHALL BE NOTIFIED IN WRITING AT LEAST 48 HOURS PRIOR TO SCHEDULING ANY INSPECTION OR TESTING.
9. ALL WATER MAINS, VALVES, FIRE HYDRANTS, SERVICES, AND APPURTENANCES SHALL BE INSTALLED, TESTED, AND APPROVED PRIOR TO PAVING.
10. ALL MAINS SHALL BE TESTED IN ACCORDANCE WITH THE LIBERTY LAKE SEWER AND WATER DISTRICT REQUIREMENTS. HYDROSTATIC TESTING SHALL BE WITNESSED BY THE ENGINEER OF RECORD AND LIBERTY LAKE SEWER AND WATER DISTRICT INSPECTOR. RESULTS OF CHLORINATION AND BACTERIA TESTS SHALL BE SUBMITTED TO THE LIBERTY LAKE SEWER AND WATER DISTRICT FOR APPROVAL. CONTRACTOR TO PROVIDE (48) HOUR WRITTEN NOTIFICATION PRIOR TO ANY TESTING.

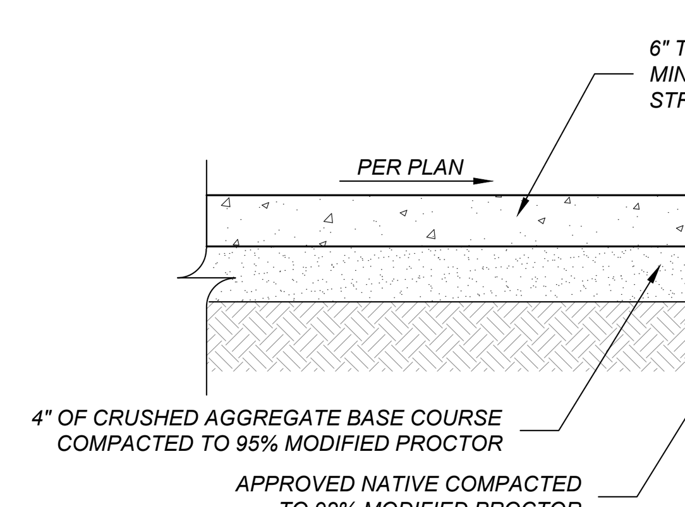
SEWER SYSTEM NOTES:

1. SANITARY SEWER SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE LIBERTY LAKE SEWER AND WATER DISTRICT STANDARD SPECIFICATIONS (LATEST EDITION).
2. SANITARY SEWER MAIN AND SERVICE LATERALS SHALL BE PVC SEWER PIPE CONFORMING TO ASTM D3034 PVC SDR 35 OR AS APPROVED BY THE LIBERTY LAKE SEWER AND WATER DISTRICT.
3. MARKING TAPE SHALL BE INSTALLED OVER ALL SEWER LINES INCLUDING SERVICE LATERALS. THE MARKING TAPE SHALL BE PLACED AT MID-DEPTH IN TRENCH, DIRECTLY OVER PIPE, AND SHALL EXTEND ITS FULL LENGTH. MARKING TAPE SHALL MEET THE REQUIREMENTS OF THE LIBERTY LAKE SEWER AND WATER DISTRICT SPECIFICATIONS.
4. LOCATION AND ELEVATION OF EXISTING FACILITIES SHOULD BE CONFIRMED BY FIELD MEASUREMENTS AND EXCAVATION EXPLORATION BY THE CONTRACTOR, PRIOR TO BEGINNING OF NEW WORK.
5. ALL SEWER MAINS SHALL BE AIR TESTED IN ACCORDANCE WITH LIBERTY LAKE SEWER AND WATER DISTRICT REQUIREMENTS. TESTING SHALL BE WITNESSED, RECORDED, AND SIGNED BY THE ENGINEER OF RECORD AND THE LIBERTY LAKE SEWER AND WATER DISTRICT REPRESENTATIVE, AND THE TEST RESULTS SUBMITTED TO THE LIBERTY LAKE SEWER AND WATER DISTRICT. CONTRACTOR TO PROVIDE 48 HOUR WRITTEN NOTIFICATION PRIOR TO ANY TESTING.
6. THE CONTRACTOR MUST SECURE APPROVAL FROM THE LIBERTY LAKE SEWER AND WATER DISTRICT INSPECTOR PRIOR TO BACKFILL OVER SEWER TEES.
7. NO DISRUPTION OF EXISTING SEWER SERVICE WILL BE ALLOWED WITHOUT THE SPECIFIC APPROVAL OF THE LIBERTY LAKE SEWER AND WATER DISTRICT.
8. THE LIBERTY LAKE SEWER AND WATER DISTRICT INSPECTOR SHALL BE NOTIFIED AT LEAST FORTY-EIGHT (48) HOURS PRIOR TO COMMENCING WORK ON SEWERS.
9. ALL SEWER LATERALS SHALL BE PLACED, INSPECTED AND APPROVED PRIOR TO PAVING.
10. ALL PUBLIC SEWER LINES SHALL BE VIDEOTAPED AND SUBMITTED TO THE LIBERTY LAKE SEWER AND WATER DISTRICT AND THE ENGINEER OF RECORD FOR REVIEW AND APPROVAL PRIOR TO PAVING. SEWER VIDEO SUBMITTAL TO THE ENGINEER MUST INCLUDE A DETAILED REVIEW BY THE VIDEO TECHNICIAN. THE ENGINEER OF RECORD SHALL REVIEW AND COMMENT ON THE VIDEO REPORTS PRIOR TO SUBMITTING TO THE DISTRICT FOR REVIEW. PLEASE ALLOW FORTY-EIGHT (48) HOURS FOR REVIEW.
11. ALL MANHOLES SHALL BE INSPECTED BY THE LIBERTY LAKE SEWER AND WATER DISTRICT BOTH PRIOR TO PAVING AND PRIOR TO ACCEPTANCE OF IMPROVEMENTS.



TYPICAL PAVEMENT DETAIL

N.T.S.



CONCRETE ACCESS PATH DETAIL

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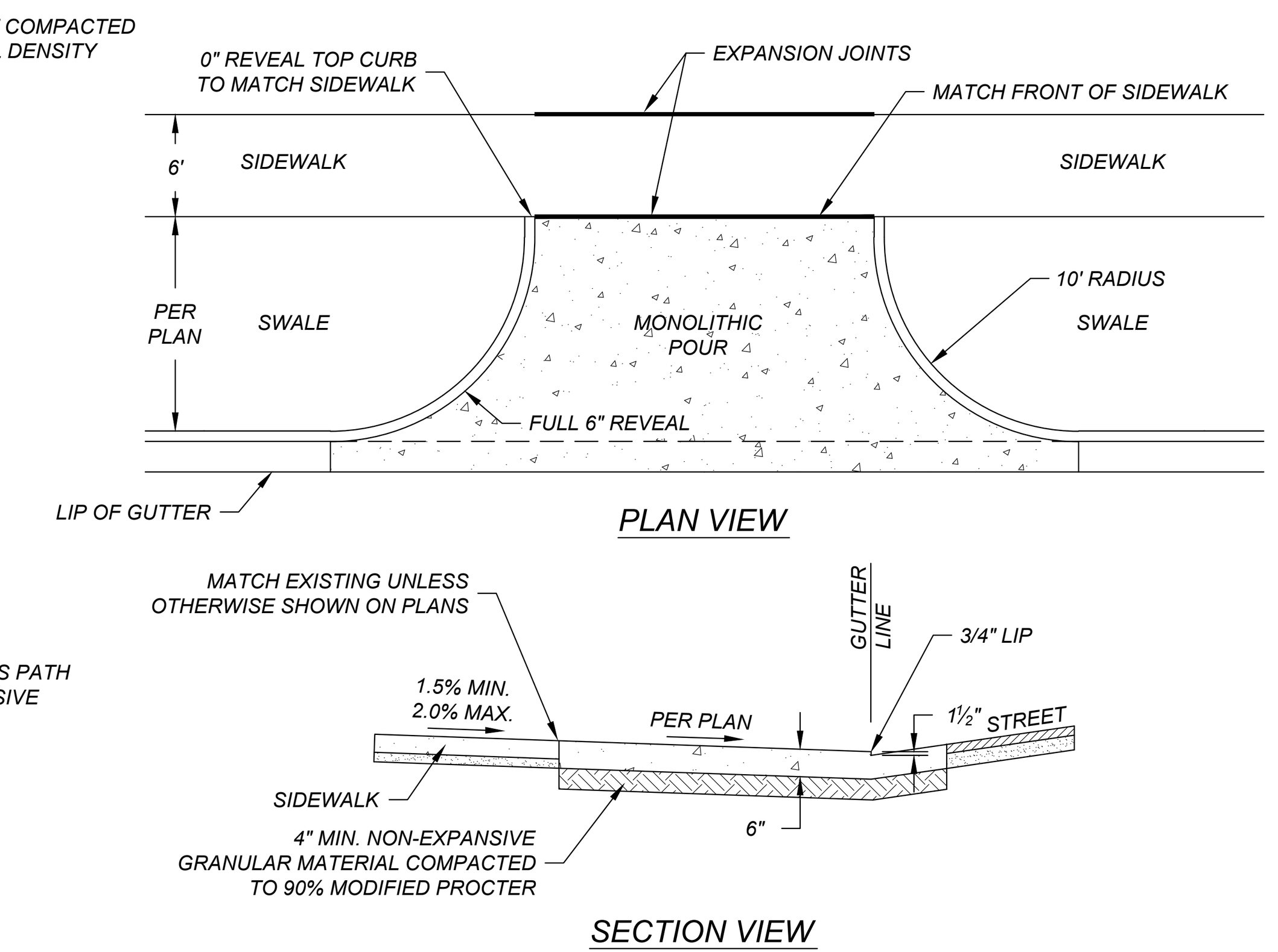
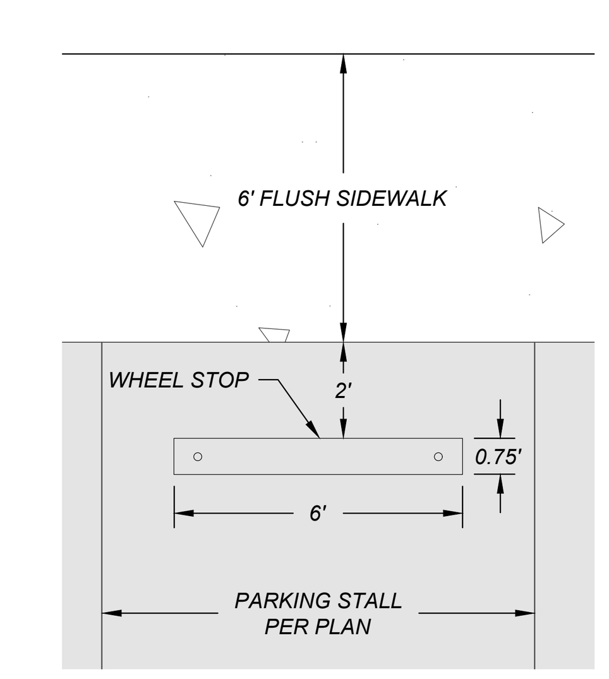


NOTES:
1. RADIUS SHALL BE A MINIMUM OF 10 FEET (MAX. 20 FEET).
2. CONCRETE SHALL HAVE A 28 DAY COMPRESSIVE STRENGTH OF 3000 PSI.

URBAN APPROACH DETAIL

N.T.S.



WHEEL STOP DETAIL

N.T.S.

UNDERGROUND SERVICE ALERT
ONE-CALL NUMBER
811
CALL TWO BUSINESS DAYS BEFORE YOU DIG
WWW.DIGLINE.COM

REVISION BLOCK

NO.	DESCRIPTION	INITIAL	DATE

LAKE CITY ENGINEERING
3909 N. SCHREIBER WAY, STE. 4
COEUR D'ALENE, IDAHO 83815
PHONE: 208-676-0230

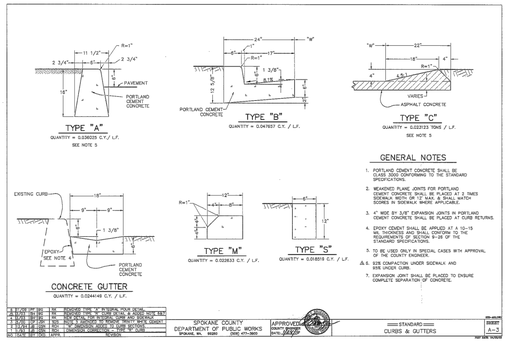
DREW CRANDELL DITTMAN
STATE OF WASHINGTON
46570
REGISTERED PROFESSIONAL ENGINEER
6/20/16

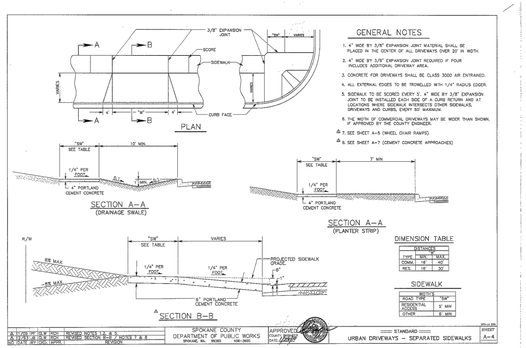
LEGACY VILLAS

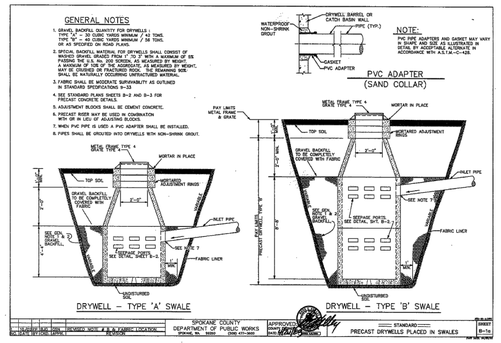
PROJECT SPECIFICATIONS & PROJECT DETAILS
LIBERTY LAKE, WASHINGTON

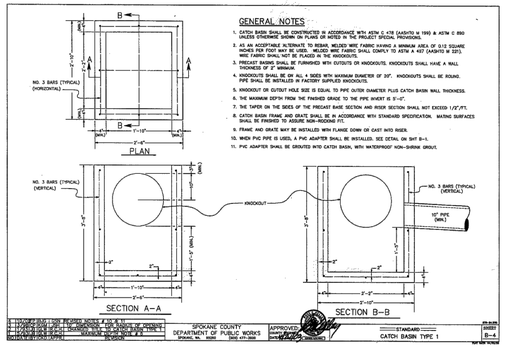
ONE INCH
AT FULL SIZE IF NOT ONE INCH SCALE ACCORDINGLY

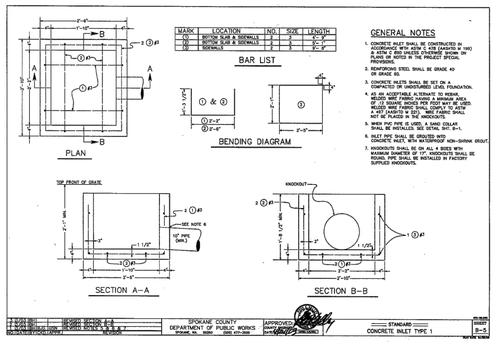
DESIGNED BY:	DCD
DRAFTED BY:	DLH
DATE:	6/20/2016
JOB NO:	LCE 15-072

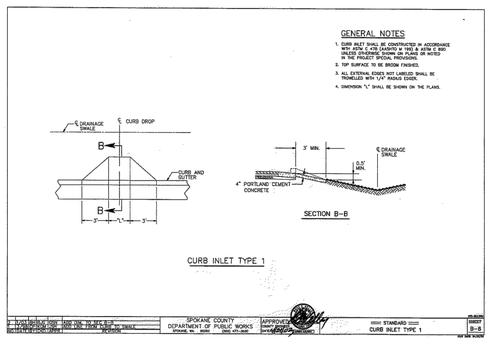


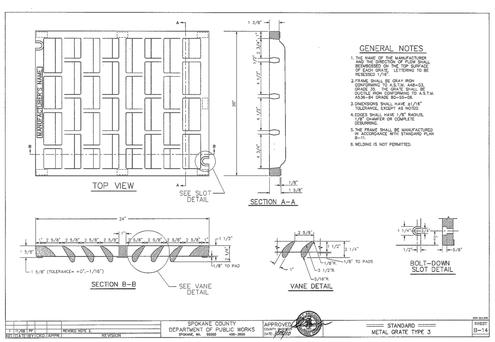


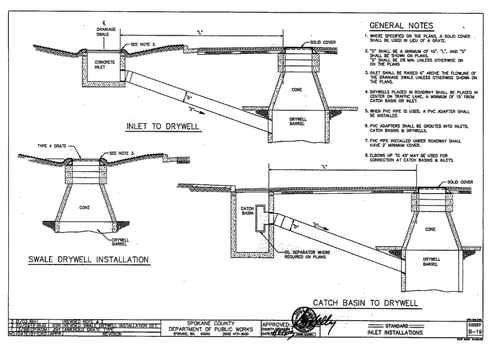


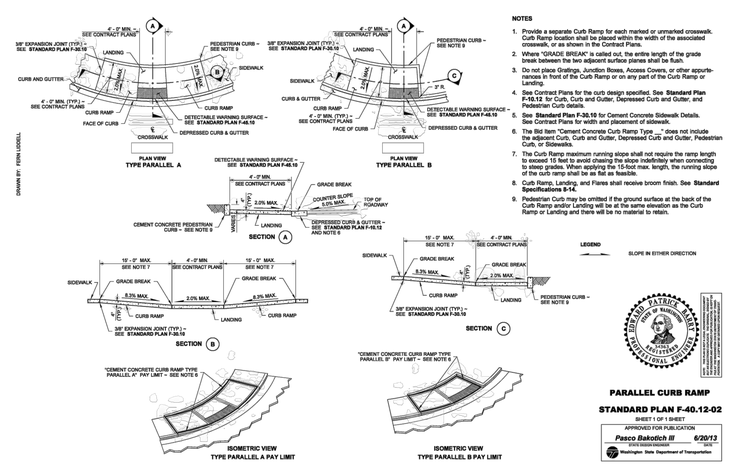


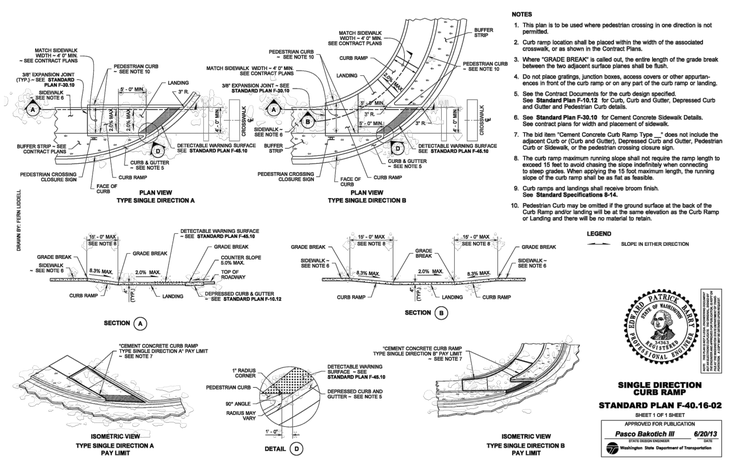


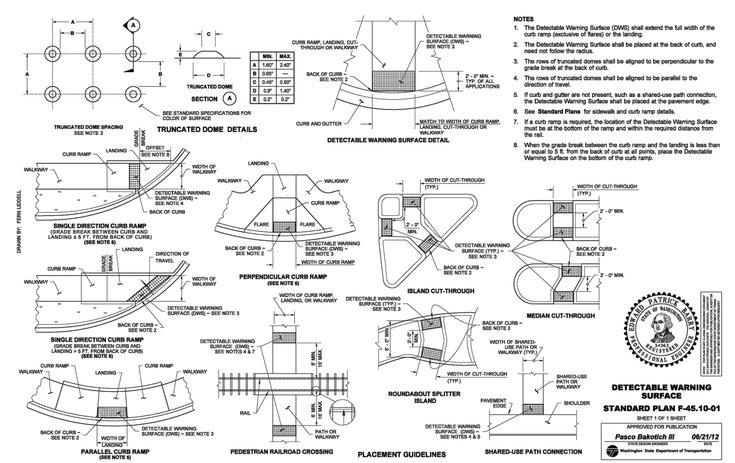












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DREW CHANDLER BITTNER
STATE OF WASHINGTON
21570
REGISTERED PROFESSIONAL ENGINEER
6/20/16

LEGACY VILLAS

PROJECT DETAILS
LIBERTY LAKE, WASHINGTON

ONE INCH
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DESIGNED BY:	DCD
DRAFTED BY:	DLH
DATE:	6/20/2016
JOB NO:	LCE 15-072

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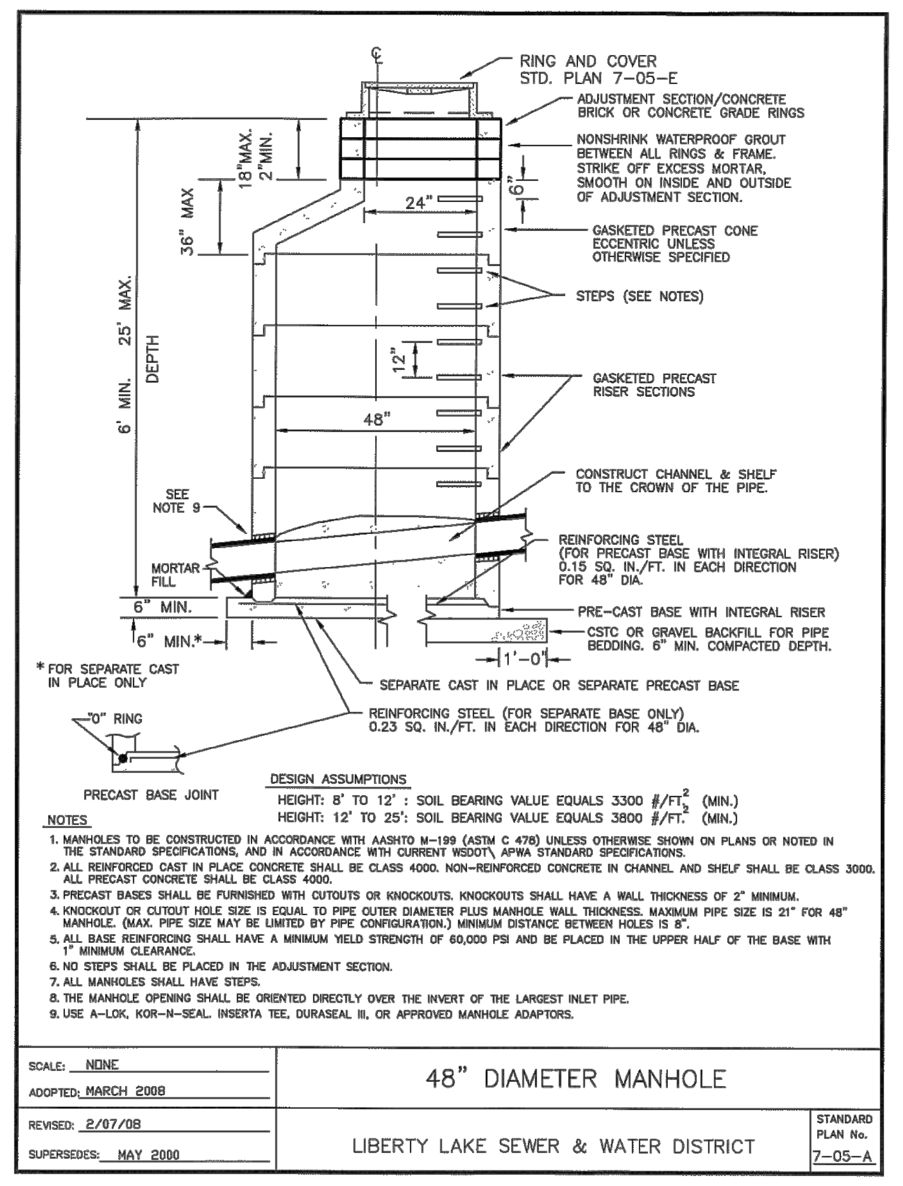
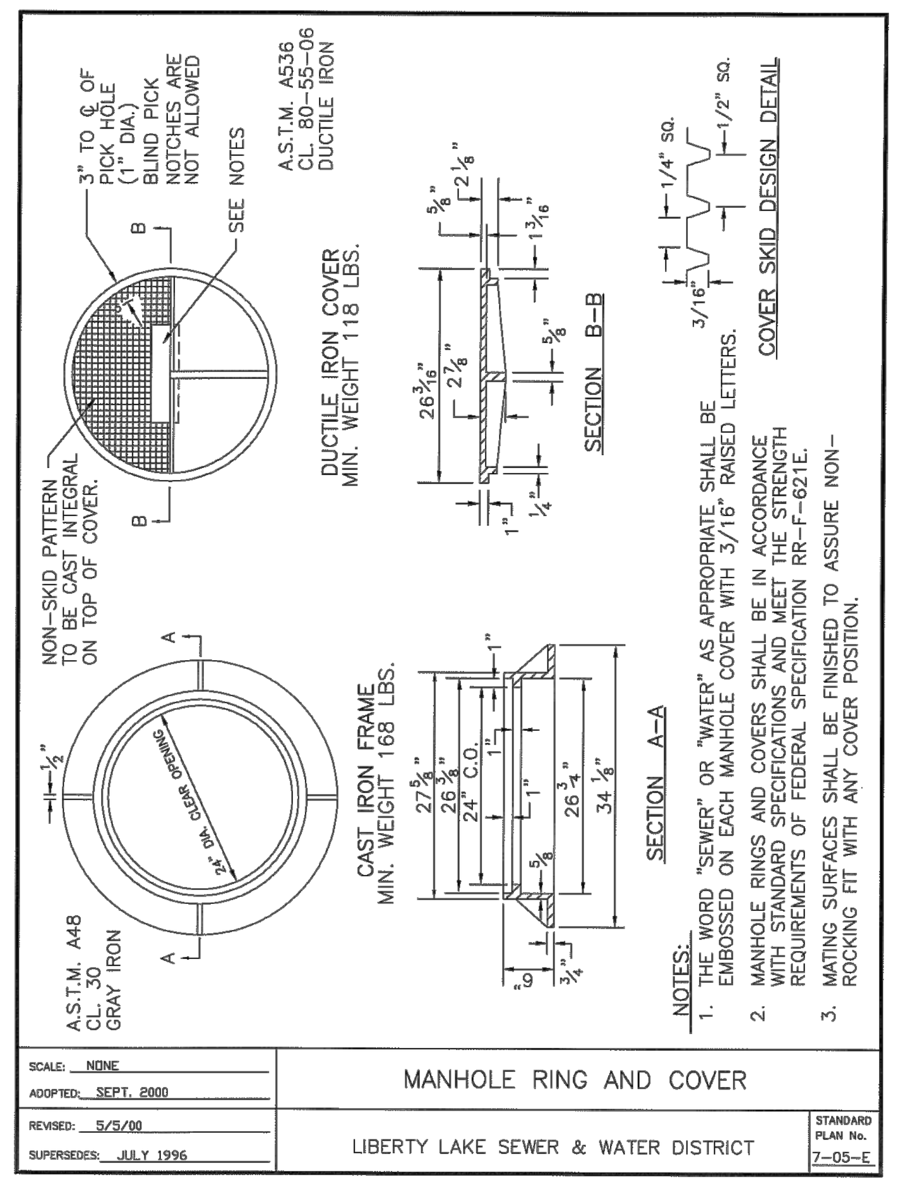
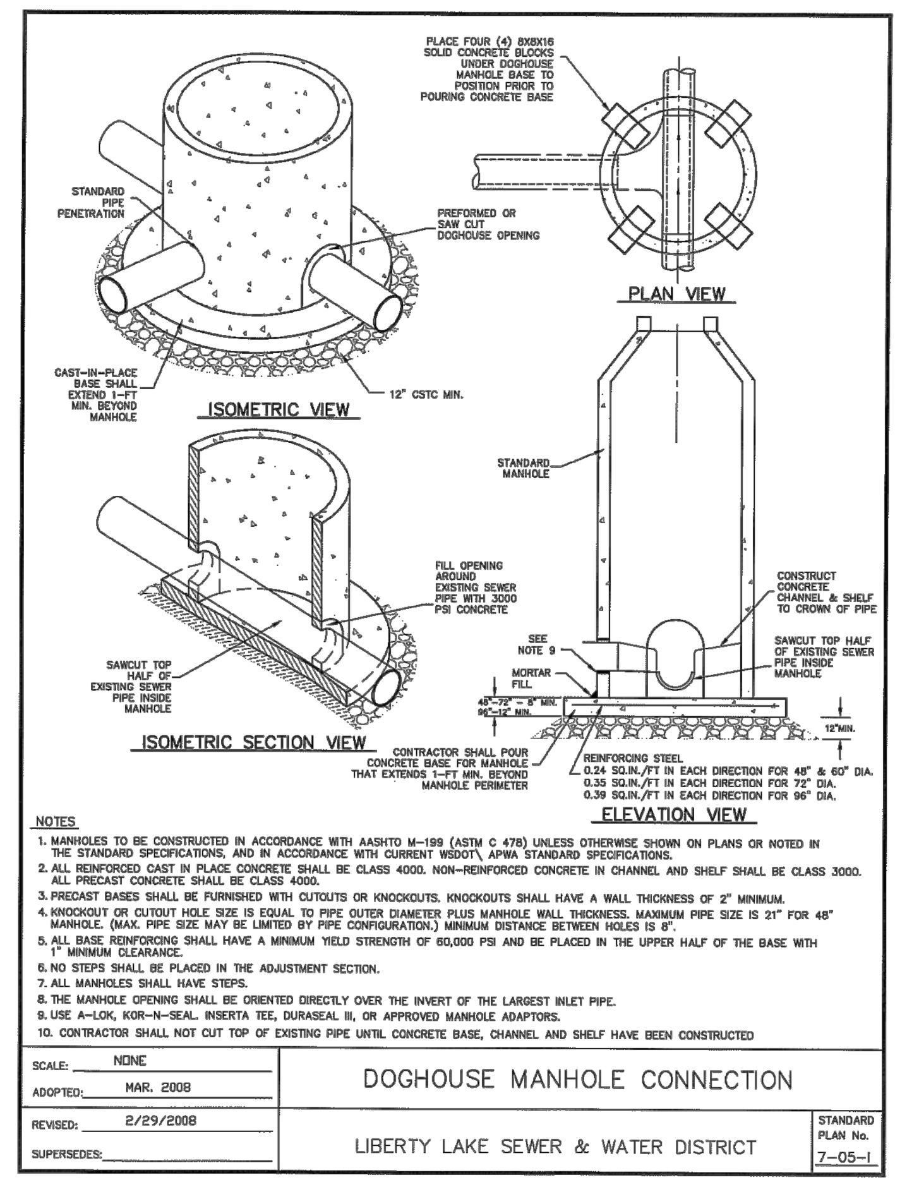
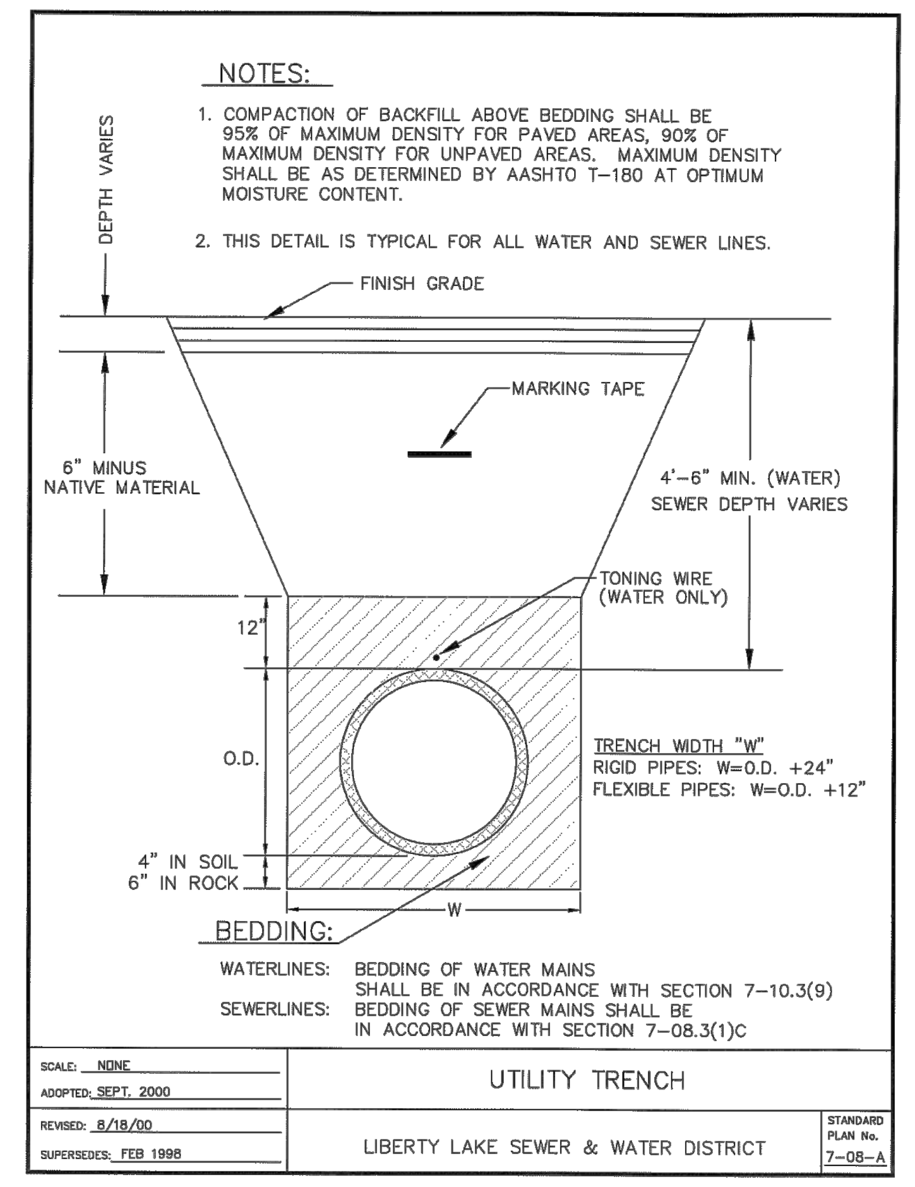
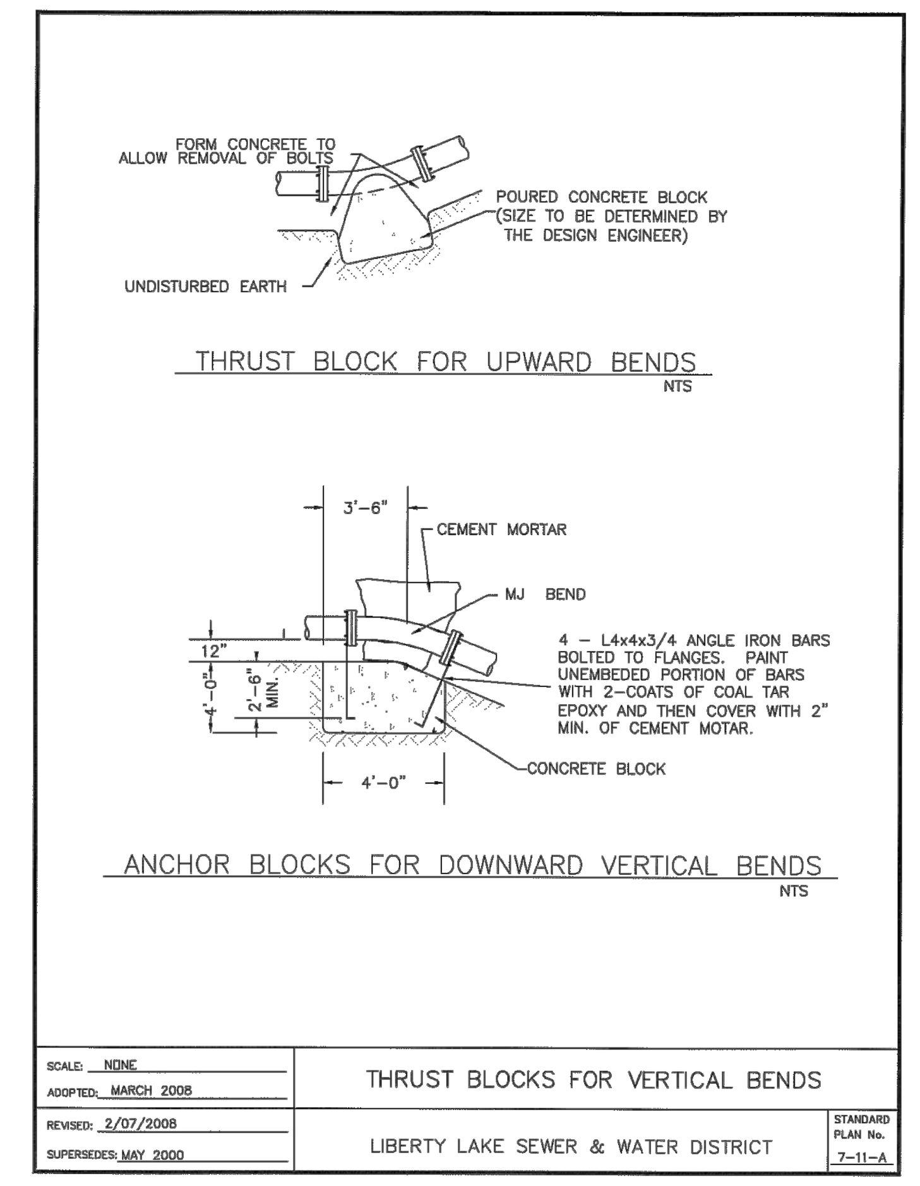
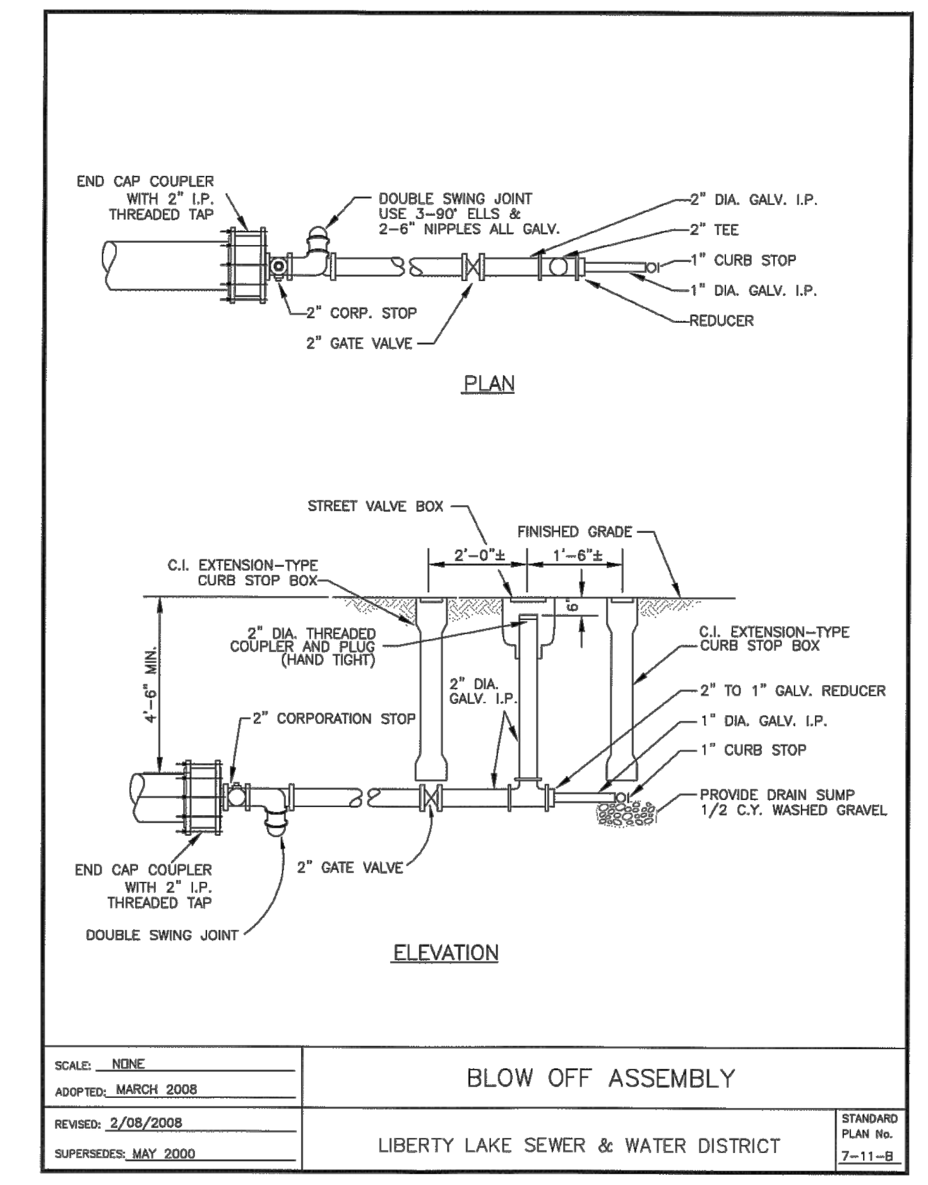


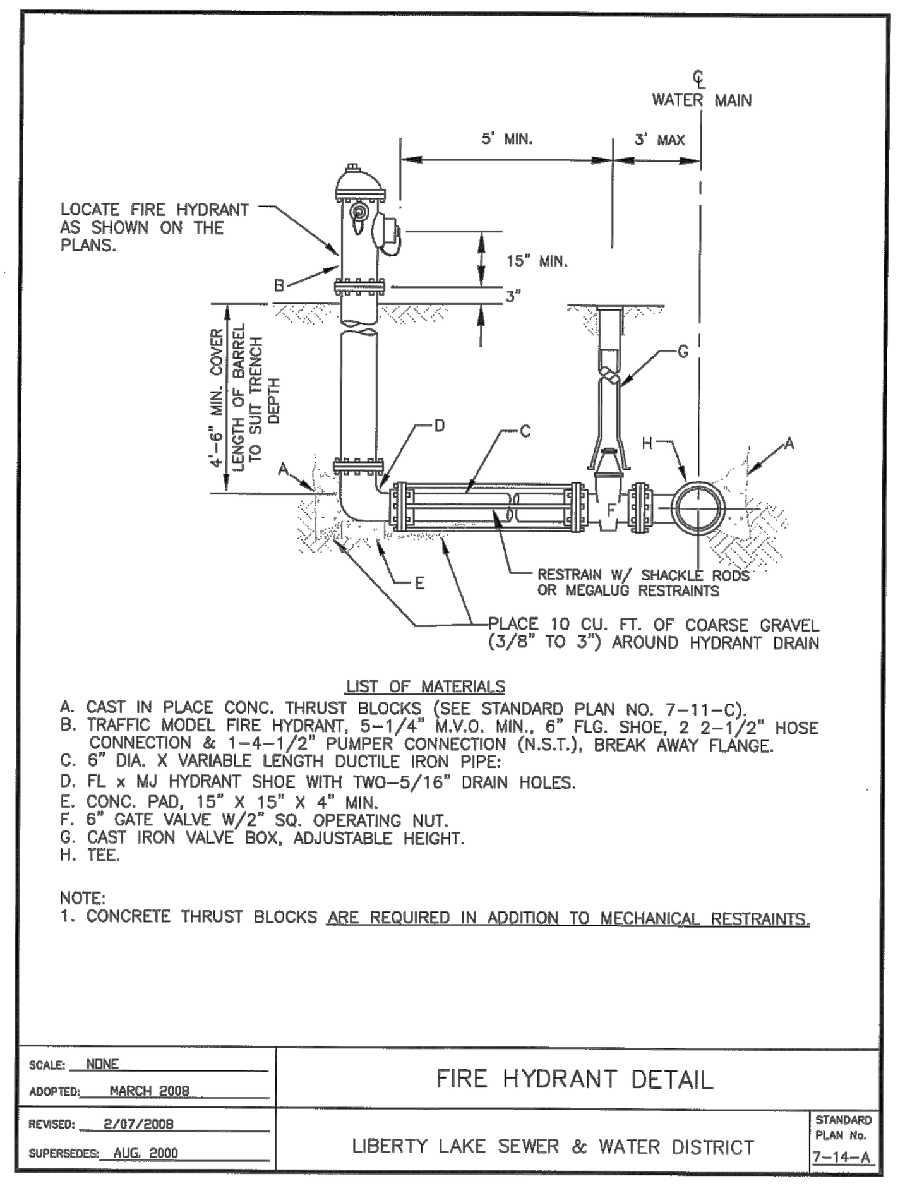


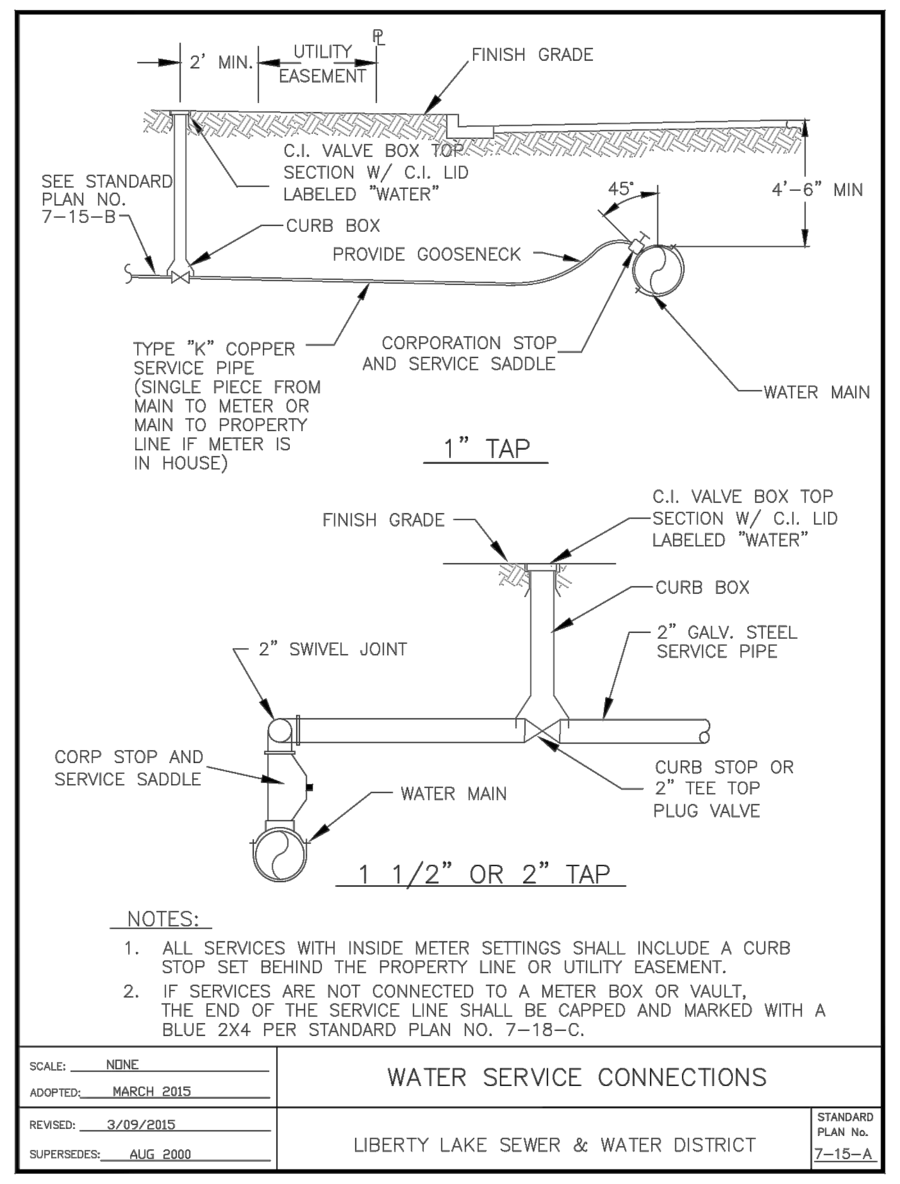


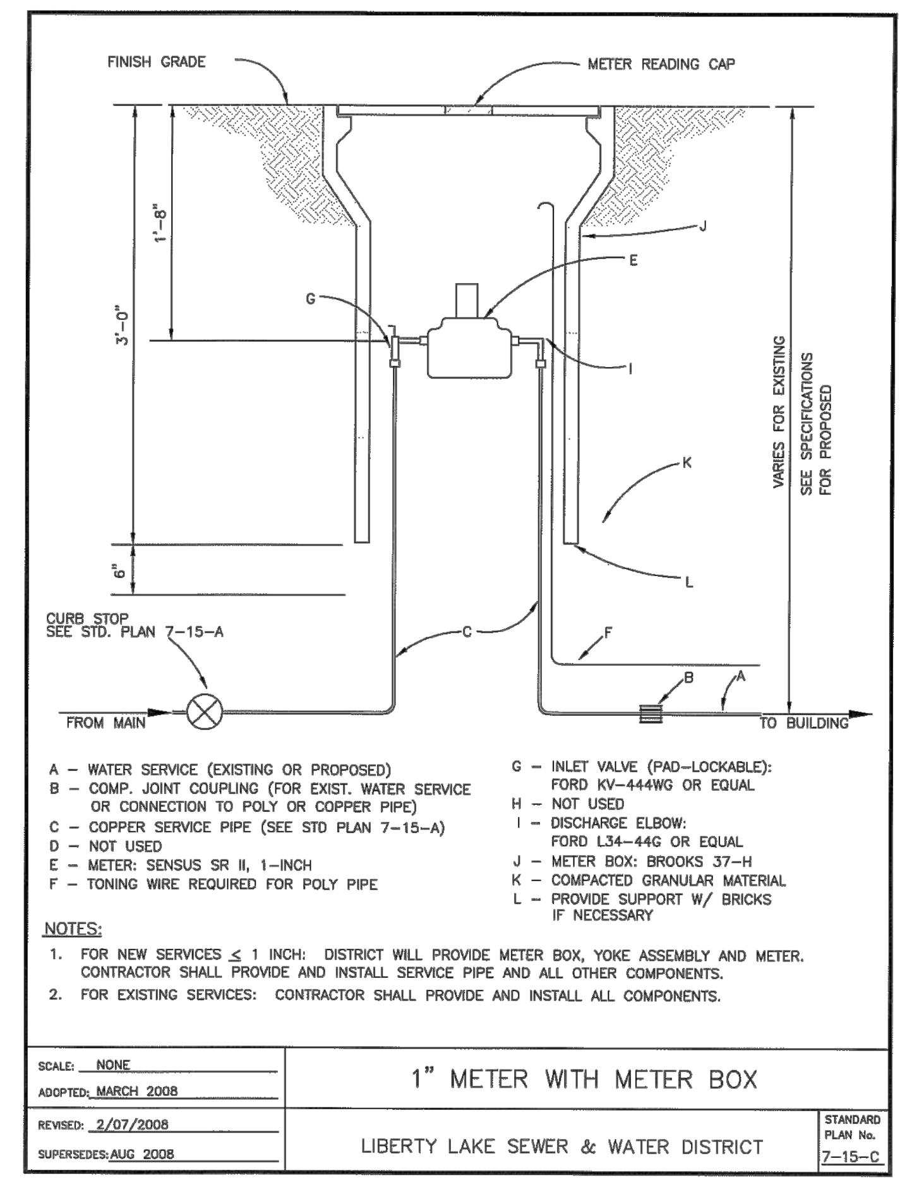


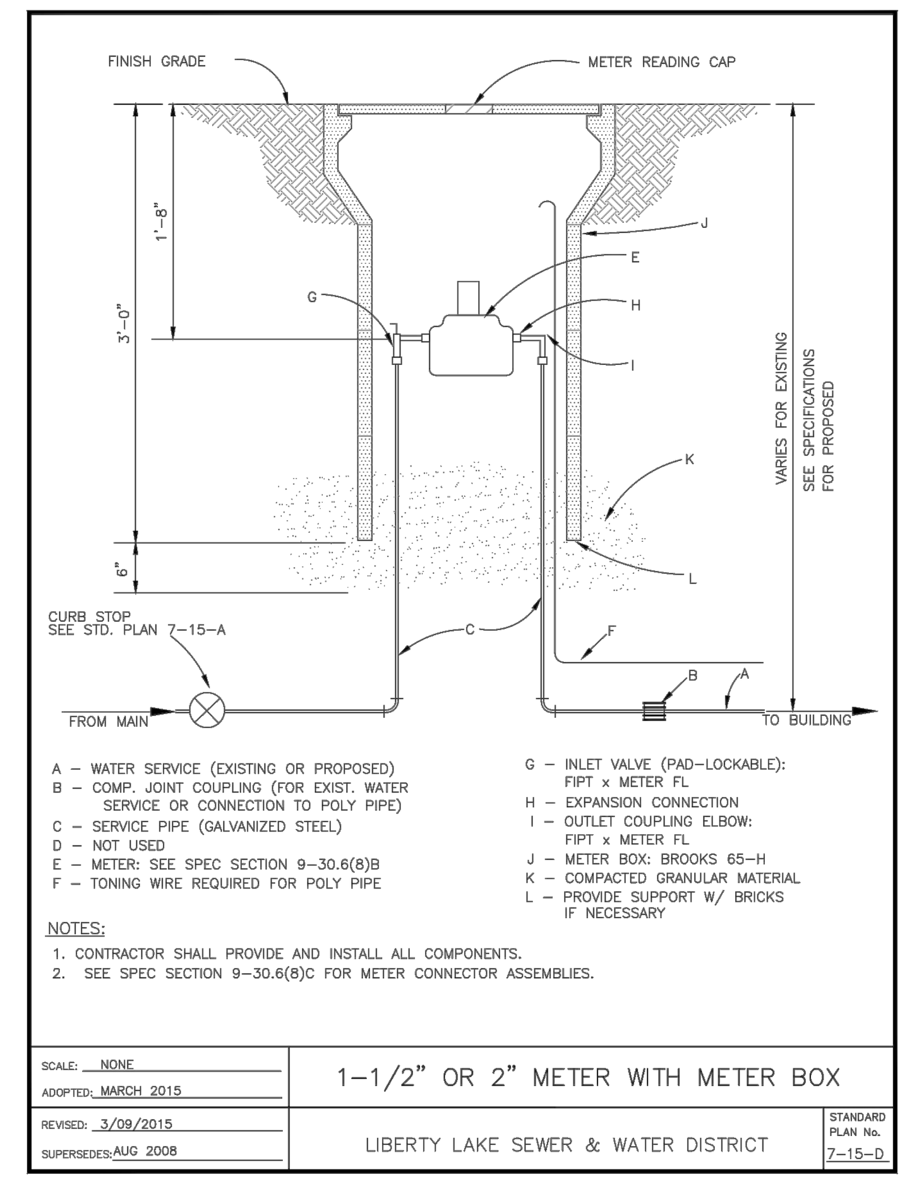


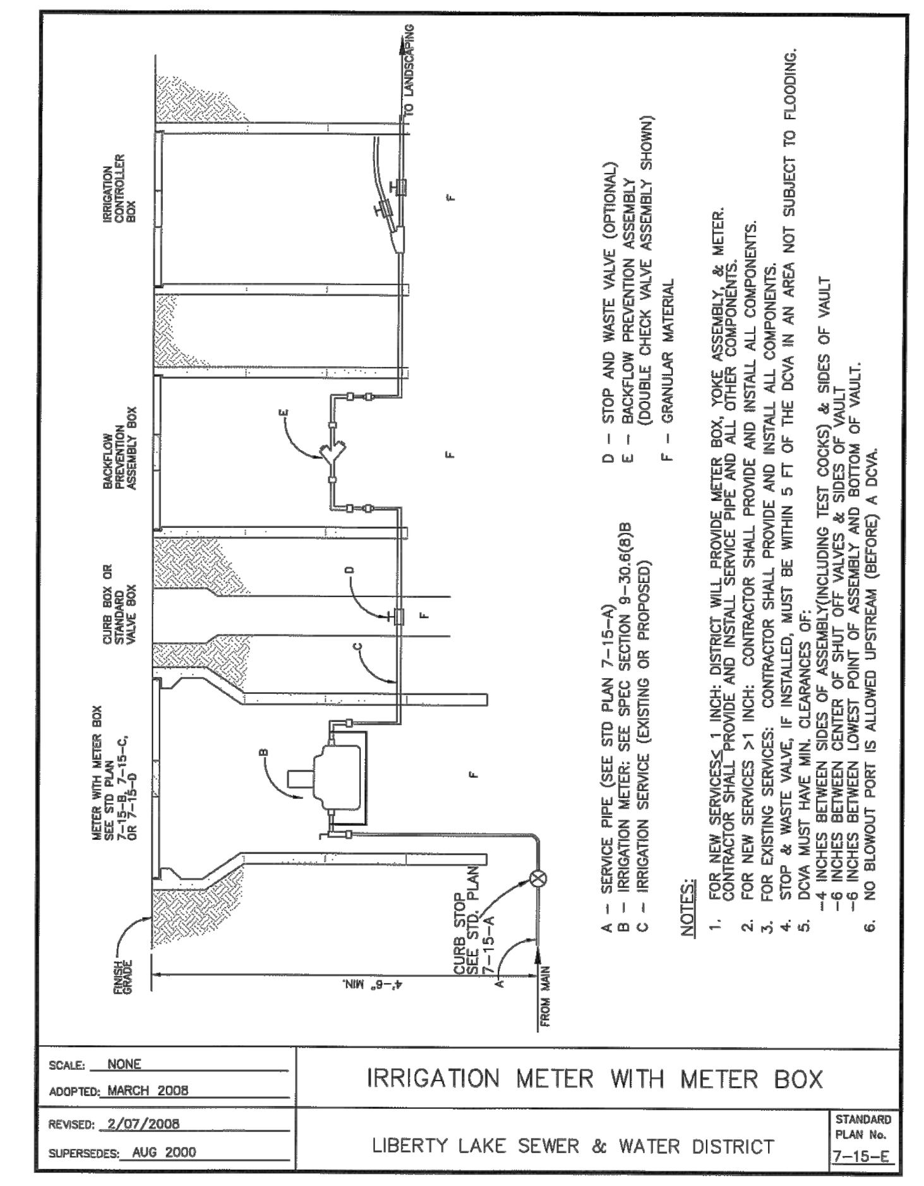


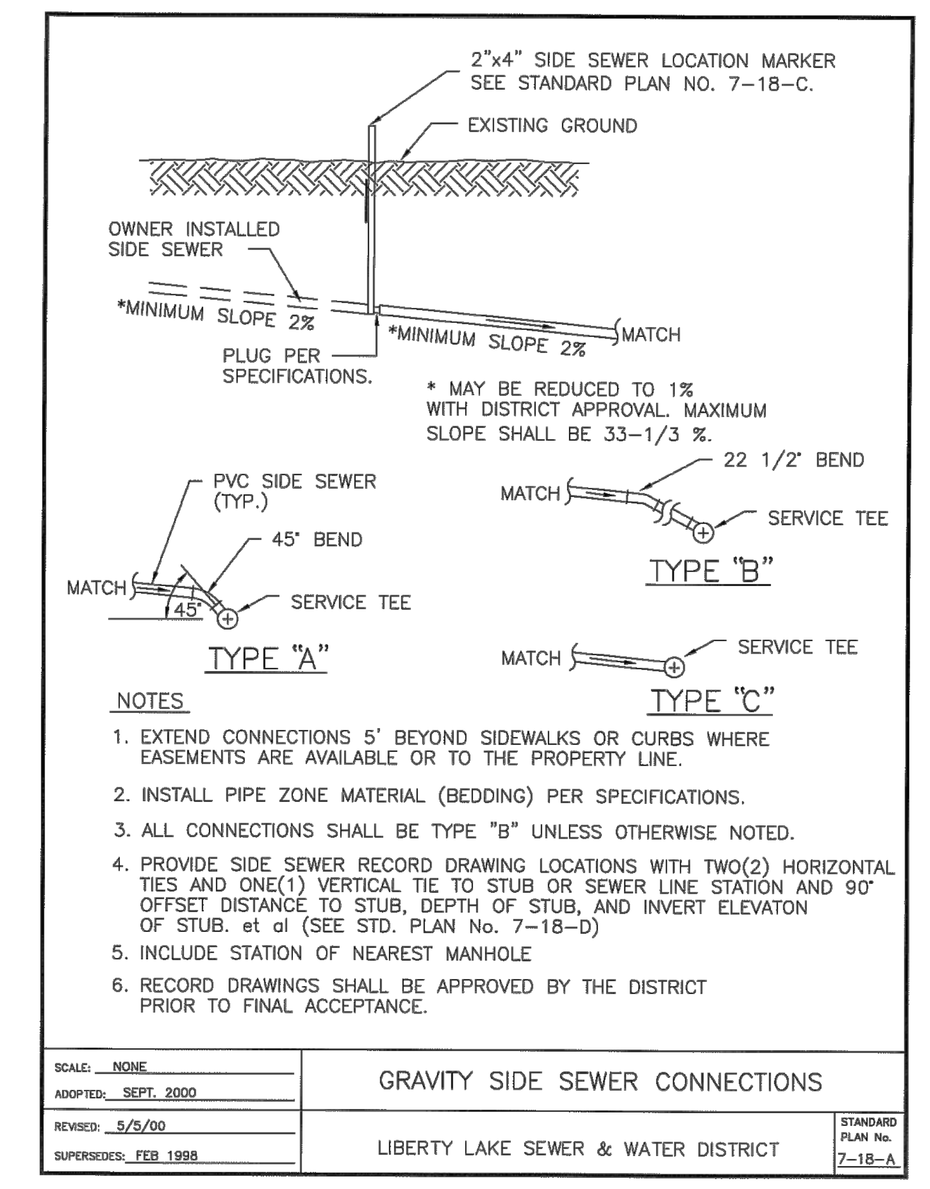


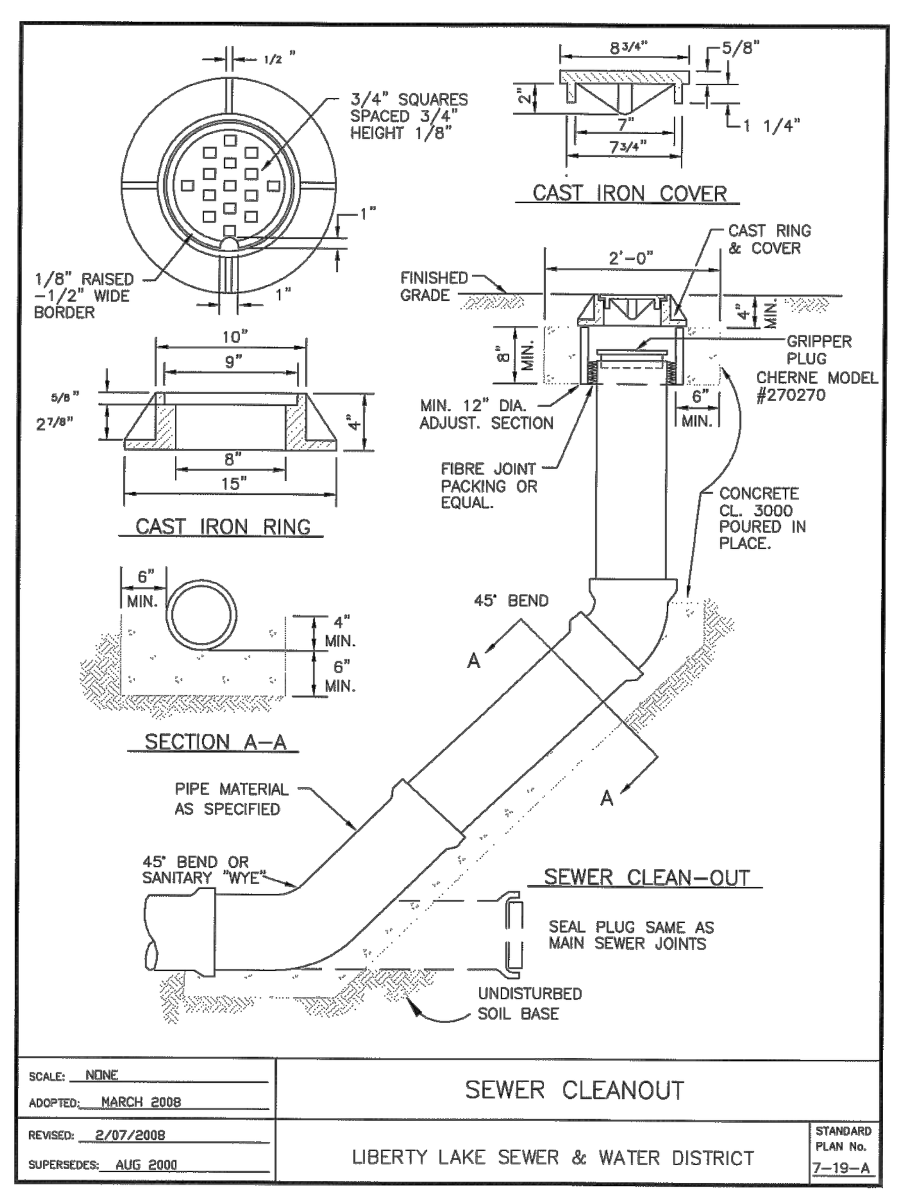




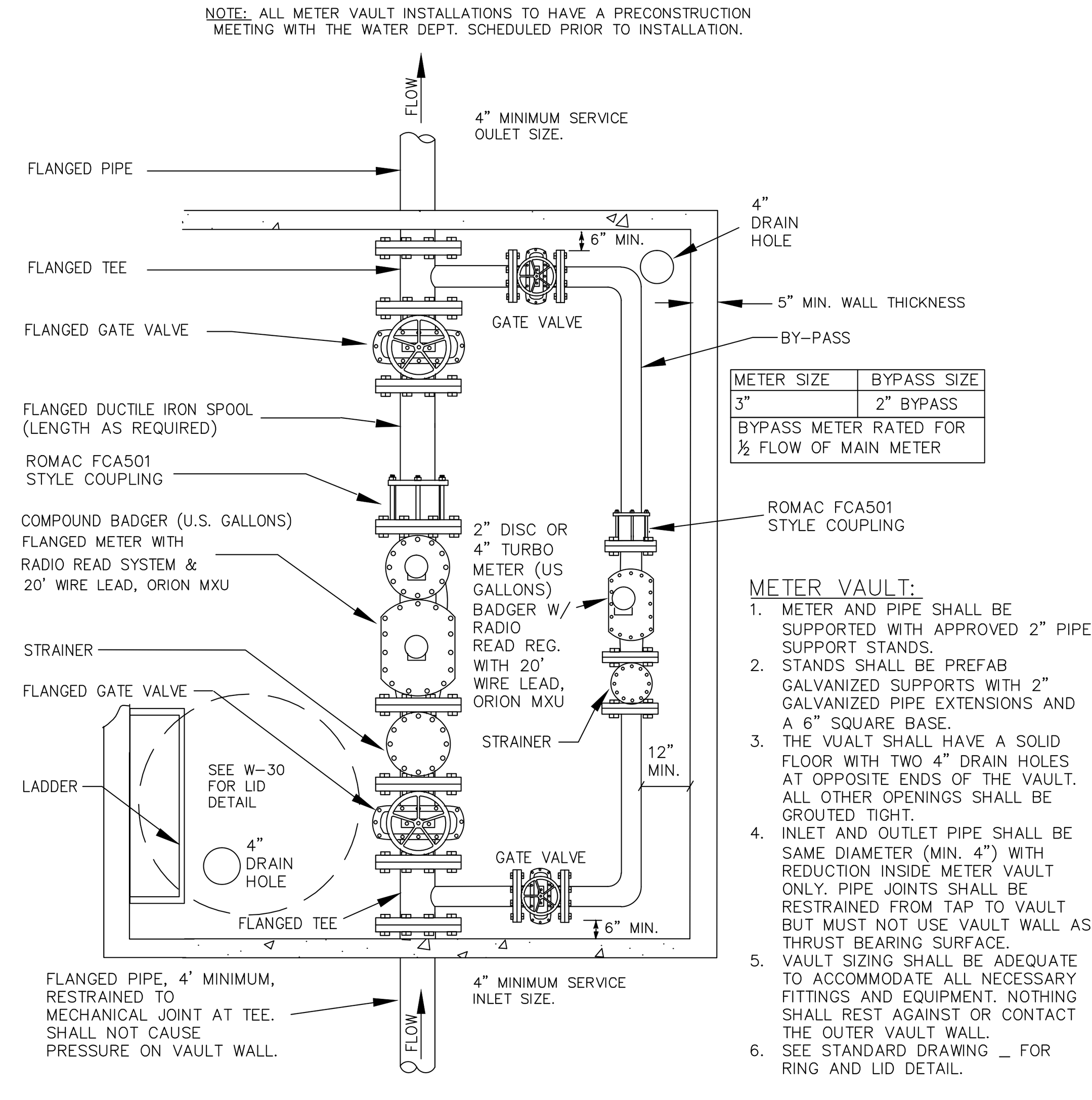






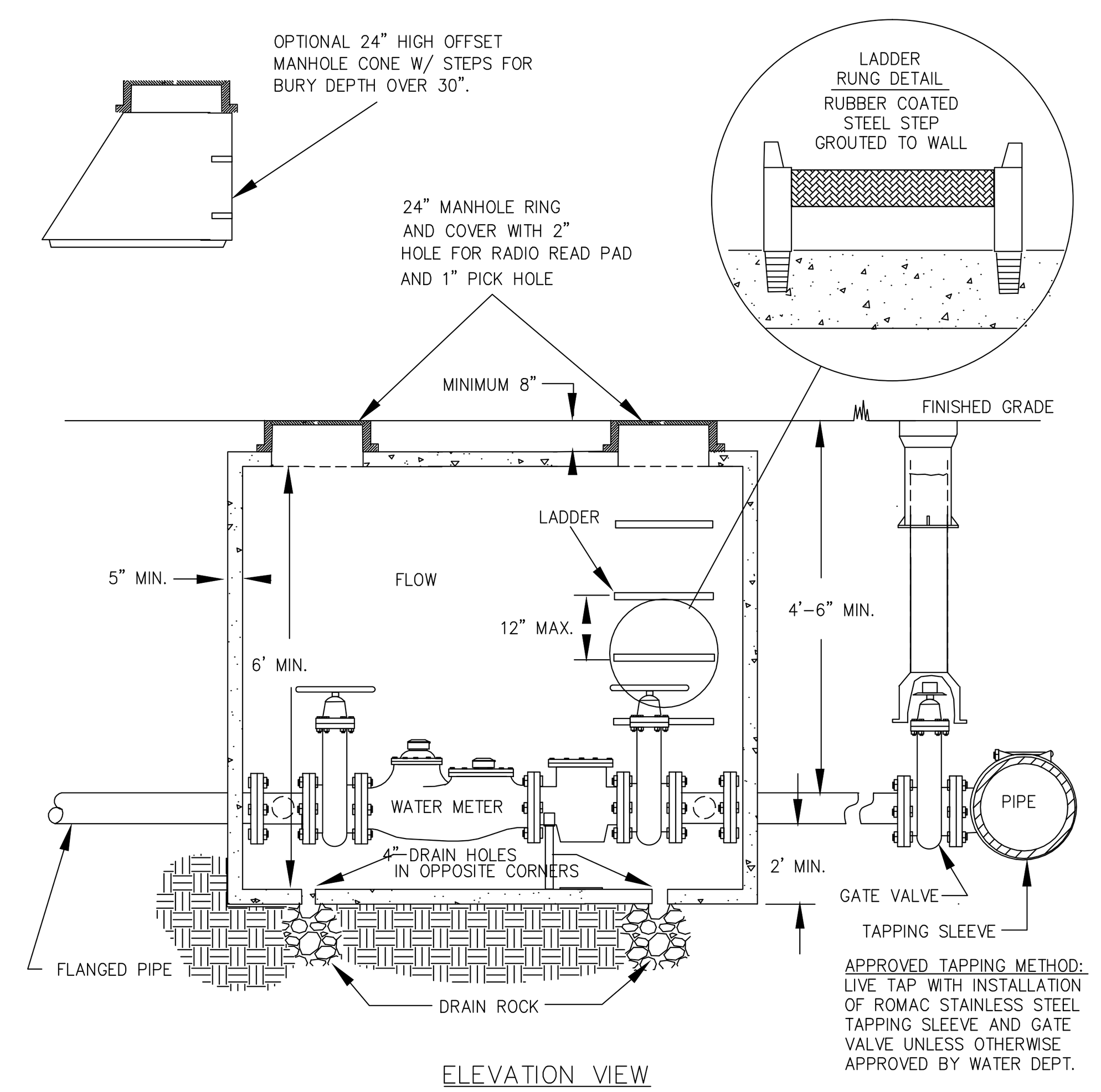


NOTE: ALL METER VAULT INSTALLATIONS TO HAVE A PRECONSTRUCTION MEETING WITH THE WATER DEPT. SCHEDULED PRIOR TO INSTALLATION.



METER VAULT:
1. METER AND PIPE SHALL BE SUPPORTED WITH APPROVED 2" PIPE SUPPORT STANDS.
2. STANDS SHALL BE PREFAB GALVANIZED SUPPORTS WITH 2" GALVANIZED PIPE EXTENSIONS AND A 6" SQUARE BASE.
3. THE VAULT SHALL HAVE A SOLID FLOOR WITH TWO 4" DRAIN HOLES AT OPPOSITE ENDS OF THE VAULT. ALL OTHER OPENINGS SHALL BE GROUTED TIGHT.
4. INLET AND OUTLET PIPE SHALL BE SAME DIAMETER (MIN. 4") WITH REDUCTION INSIDE METER VAULT ONLY. PIPE JOINTS SHALL BE RESTRAINED FROM TAP TO VAULT BUT MUST NOT USE VAULT WALL AS THRUST BEARING SURFACE.
5. VAULT SIZING SHALL BE ADEQUATE TO ACCOMMODATE ALL NECESSARY FITTINGS AND EQUIPMENT. NOTHING SHALL REST AGAINST OR CONTACT THE OUTER VAULT WALL.
6. SEE STANDARD DRAWING _ FOR RING AND LID DETAIL.

FLANGED PIPE, 4' MINIMUM, RESTRAINED TO MECHANICAL JOINT AT TEE. SHALL NOT CAUSE PRESSURE ON VAULT WALL.



APPROVED TAPPING METHOD: LIVE TAP WITH INSTALLATION OF ROMAC STAINLESS STEEL TAPPING SLEEVE AND GATE VALVE UNLESS OTHERWISE APPROVED BY WATER DEPT.

NOTES:
1. VAULT CONSTRUCTION TO BE DESIGNED BASED ON POTENTIAL TRAFFIC LOAD. WILBERT 1914 SERIES W/ INSIDE DIMENSION AS NOTED BELOW.
2. LENGTH AND WIDTH OF VAULT SHALL ACCOMMODATE EQUIPMENT WITH ADEQUATE OR VENDORS RECOMMENDED CLEARANCE FROM WALLS TO REMOVE OR MAINTAIN EQUIPMENT. MUST HAVE APPROVED WALL MOUNTED LADDER RUNGS AS ILLUSTRATED. RUNGS SHALL HAVE RUBBER COATING.
3. PIPE SHALL BE RSTRAINED TO LAST MECHANICAL JOINT AT TEE AND SHALL NOT USE THE VAULT WALL FOR THRUST BLOCKING.
4. THE VAULT SHALL HAVE A MINIMUM INTERIOR HEIGHT OF 6'.
5. CONCRETE RISER RINS IN EXCESS OF 8" HIGH SHALL REQUIRE THE INSTALLATION OF ADDITIONAL STEP(S).
6. VAULT SHALL BE INSTALLED LEVEL AND PLUMB TO ALLOW FOR ADEQUATE DRAINAGE THROUGH 4" DRAIN HOLES IN OPPOSITE CORNERS.
7. PIPE HOLES SHALL BE CAST MIN 4" LARGER THAN PIPE TO BE USED.

3" DOMESTIC METER VAULT DETAIL

NTS

UNDERGROUND SERVICE ALERT
ONE-CALL NUMBER
811
CALL TWO BUSINESS DAYS BEFORE YOU DIG
WWW.DIGLINE.COM

NO.	DESCRIPTION	INITIAL	DATE

REVISION BLOCK

LAKE CITY ENGINEERING
3909 N. SCHREIBER WAY, STE. 4
COEUR D'ALENE, IDAHO 83815
PHONE: 208-676-0230

LEGACY VILLAS

PROJECT DETAILS
LIBERTY LAKE, WASHINGTON

ONE INCH
AT FULL SIZE IF NOT ONE INCH SCALE ACCORDINGLY

DESIGNED BY:	DCD
DRAFTED BY:	DLH
DATE:	6/20/2016
JOB NO:	LCE 15-072

14

14

Job # 15-072

LEGACY VILLAS

SITE ANALYSIS NARRATIVE

Liberty Lake, Washington

June 20, 2016

LAKE CITY ENGINEERING

3909 N. Schreiber Way, Suite 4
Coeur d'Alene, Idaho 83815
Phone/Fax: 208-676-0230

INTRODUCTION

The project proponent, Legacy Villas, LLC is requesting to develop 9.3 acres of property in the City of Liberty Lake into a 126-unit apartment complex. This will be Phase 1 of a multiple phase multi-family development. The subject property is located at South of Country Vista Drive, East of Legacy Ridge Drive and West of Liberty Lake Road. The land is currently vacant, as can be seen in Figure 1 below.

SUBJECT PARCEL

The property being requested for development is as follows:

Parcel No.:	55156.9202
Area:	±9.30 acres
Zoning Designation:	M-2 (Community Center Mixed-Use)

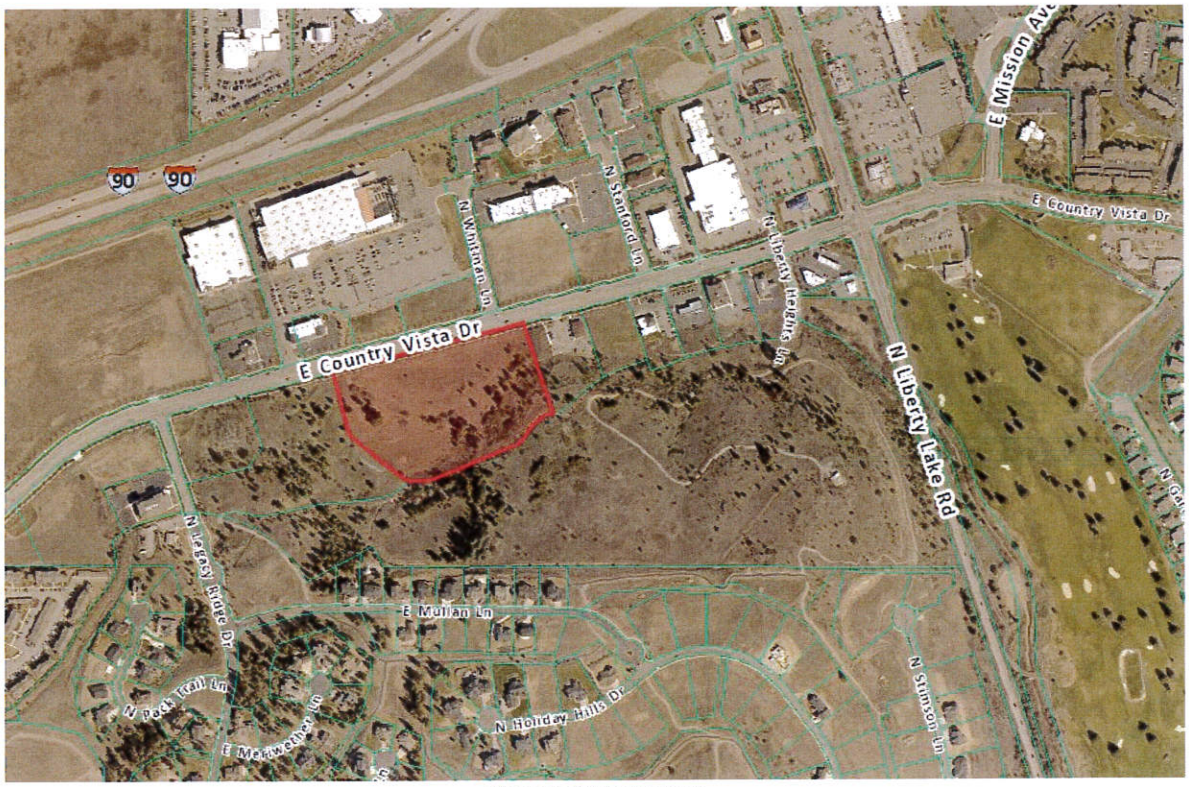


Figure 1: Vicinity Map

ZONING CLASSIFICATION

The property is currently zoned M-2 (Community Center Mixed-Use) in the City of Liberty Lake. The property to the North, West and East is zoned M-2 and the property to the South is zoned R-1. The purpose of the M-2 zoning classification is to "*promote the livability, stability, and improvement of the City's community center mixed use areas*" as stated in Article 10-2F-1 of the City of Liberty Lake Development Code. These areas are encouraged to have efficient use of the land and urban services, encourage walking as an alternative to driving, provide more employment and housing options, connection to neighborhoods and other employment areas, be transit-oriented, provide formal and informal gathering places and provide retail and commercial services to the surrounding neighborhoods. As can be seen from Figure 2, the subject property is conveniently located to shopping and local businesses and would be consistent with the neighboring apartment complex to the west of Legacy Ridge Drive.

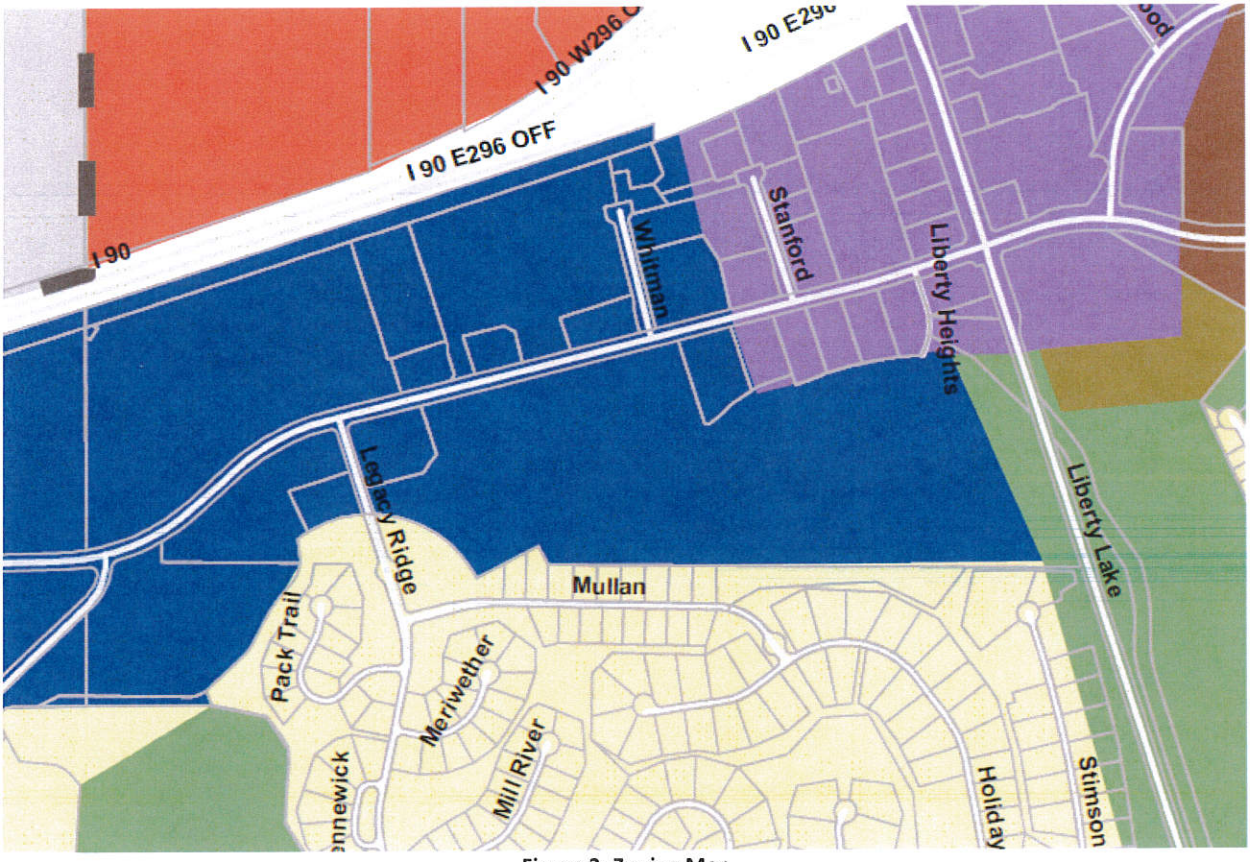


Figure 2: Zoning Map

Multi-family dwellings (apartments) are allowed by Limited Use in the M-2 zoning district. This use is allowed if the project complies with the development standards of the zone, and other applicable standards contained in the City Code. It is the project proponent's belief that this project meets and/or exceeds those development standards. Below is a list of performance standards that are applicable to this project.

Standard	M-2 Zone	Provided
Lot Area (min):	7000 sf	9.3 acres
Lot Area (max):	None	
Lot width (min):	40' @ front PL	838'
Lot depth (max):	None	390'
Max Building Height:	50'	39' (max)
Lot Coverage:	70% (max)	20%
Residential Density:	12 du/ac (min)	13.5 du/ac
	None (max)	

PRE-DEVELOPMENT CONDITIONS

The subject property is currently vacant. The general slope of the land is towards the north. The property is covered by fir and pine trees, native grasses and underbrush.

The frontage improvements on Country Vista Drive are complete and include curb, gutter, drainage swales, and street trees.

Figure 3 below shows the current site conditions.

Figure 3: Existing Site Conditions

CRITICAL / ENVIRONMENTAL AREAS

The following critical and/or environmental areas have been identified on the project site according to the City of Liberty Lake Environmental Maps.

Flood Hazard Area

Figure 4 is an excerpt from the City of Liberty Lake *UGA Boundaries Study Flood Hazard Areas* map which shows a portion of the subject property being located within a designated FEMA Floodplain.

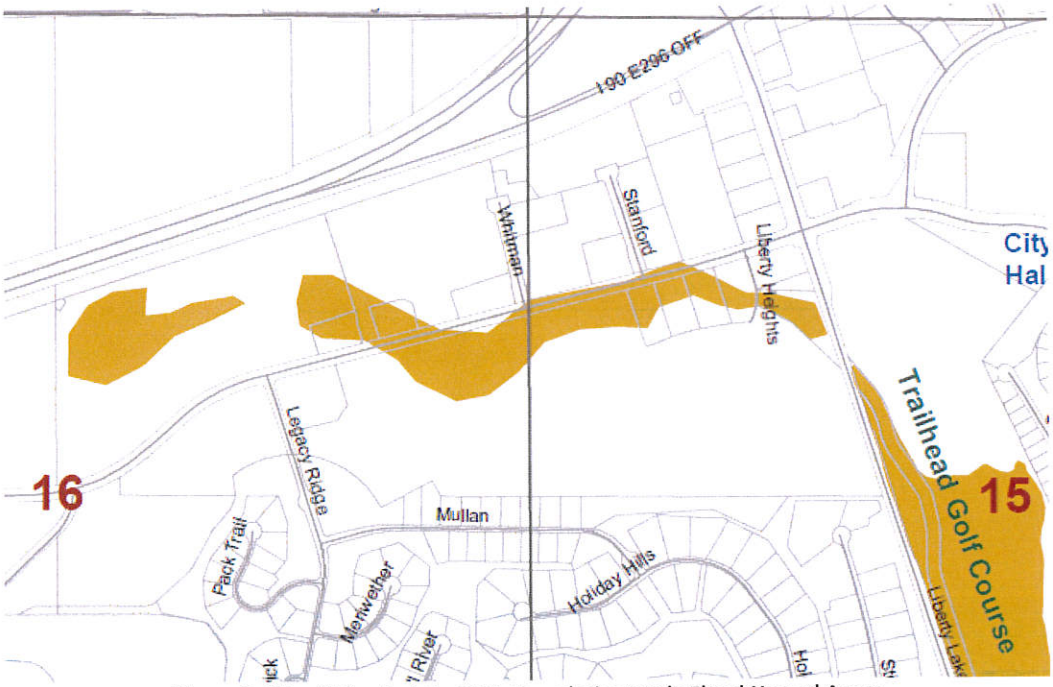


Figure 4: City of Liberty Lake UGA Boundaries Study Flood Hazard Areas

However, Figure 5 shows the FEMA Flood Insurance Rate Map, which does *not* show any areas of Special Flood Hazard (100 year flood). There is no evidence found onsite that would substantiate the location of the floodplain as shown on the City of Liberty Lake Map, therefore it is presumed that the FEMA map is more current and prevails.

Figure 5: FEMA Flood Insurance Rate Map

Wetlands

Figure 6 below is an excerpt from the City of Liberty Lake *UGA Boundaries Study Wetlands* map, which shows portions of the property containing Wetland Streams and DNR streams.

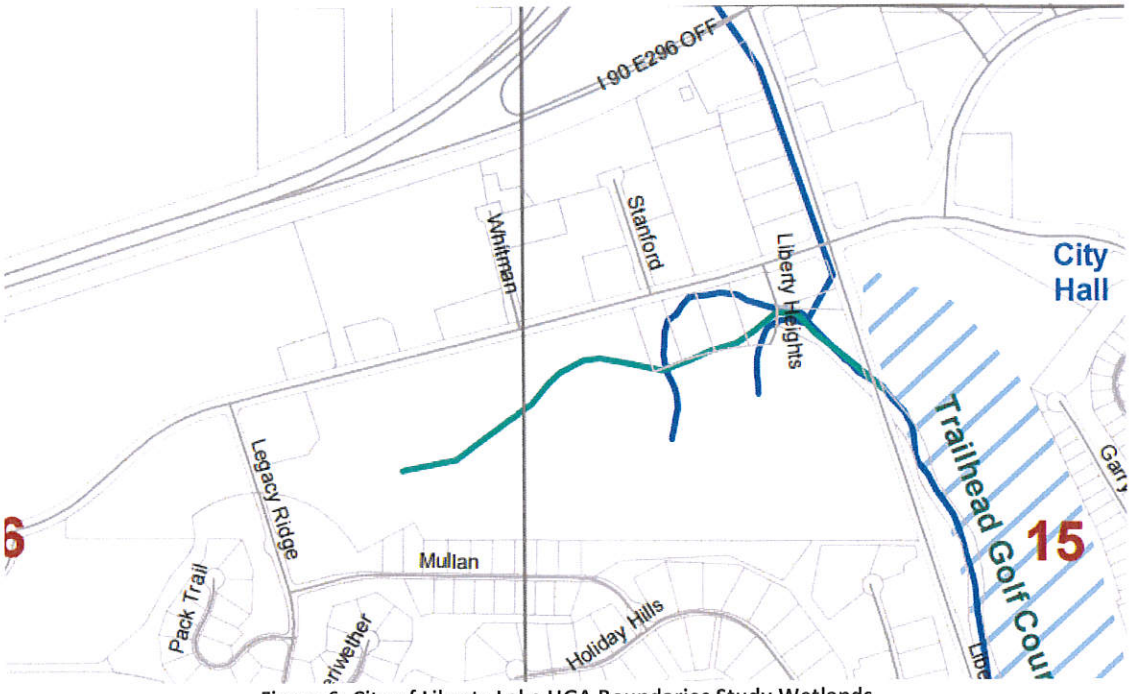


Figure 6: City of Liberty Lake UGA Boundaries Study Wetlands

Figure 7 shows all wetlands on the subject property as defined and accepted by the National Wetlands Inventory (US Fish and Wildlife Service). The DNR stream as defined by the City of Liberty Lake is shown on this map, however the Wetland Stream is not defined. There was no evidence discovered onsite to substantiate the location of the Wetland Stream as shown on the City of Liberty Lake Map, therefore it is assumed that the US Fish and Wildlife Service Map is correct.

Figure 7: US Fish and Wildlife Services National Wetlands Inventory Map

Geologic Hazards

The City of Liberty Lake has identified the subject property as containing erodible soils as shown in Figure 8 below. These soils were identified based on soil types recognized by Spokane County as having the potential for severe erosion. The services of a licensed Geotechnical Engineer have been retained, and a Geotechnical Evaluation has been completed to assess the subsurface soil conditions. Best Management Practices and ESC measures should be employed during construction to prevent any unnecessary erosion and sedimentation from occurring. Post Construction BMPs should also be utilized in accordance with the Spokane Regional Stormwater Manual and the recommendations of the project geotechnical engineer.

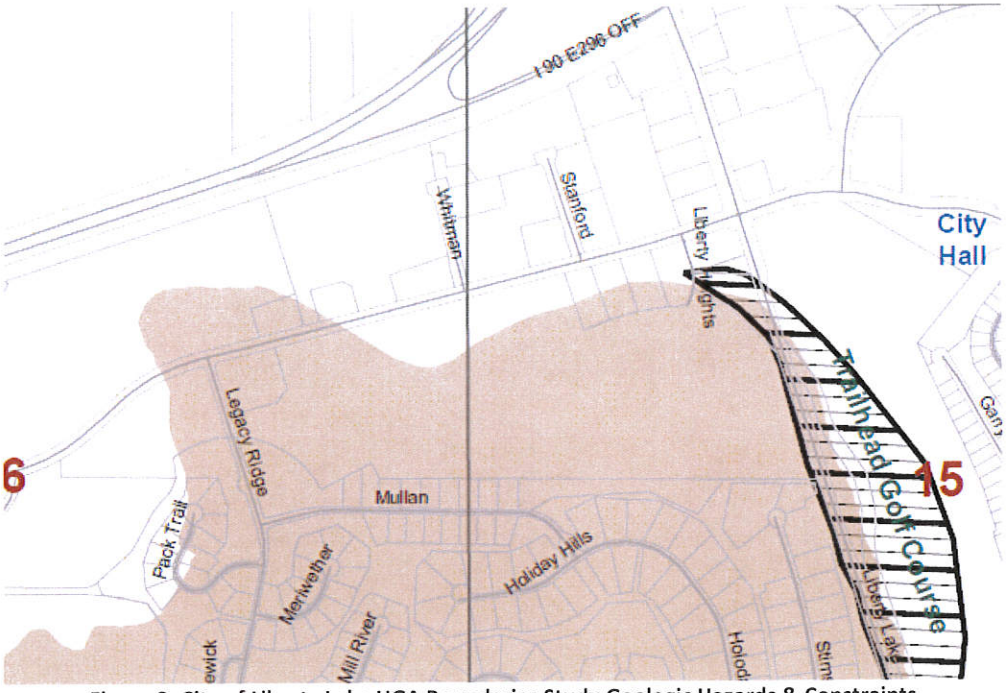


Figure 8: City of Liberty Lake UGA Boundaries Study Geologic Hazards & Constraints

Job # 15-072

Legacy Villas

Phase 1

Stormwater Drainage Summary

Liberty Lake, Washington

June 17, 2016

6/22/16

LAKE CITY ENGINEERING

3909 N. Schreiber Way, Suite 4
Coeur d'Alene, Idaho 83815
Phone/Fax: 208-676-0230

PROJECT OVERVIEW

This Stormwater Management Report supplements the accompanying Construction Plans submitted for review as part of the Legacy Villas Phase 1 project. This report describes the general drainage conditions on the site in relation to the stormwater requirements defined in the Spokane Regional Stormwater Manual and by the City of Liberty Lake.

The Legacy Villas Phase 1 site Improvements consist of the development of a new clubhouse, apartment buildings, parking lot, and stormwater treatment facilities of approximately 9.3+/- acres within the city limits of Liberty Lake, Washington. The Legacy Villas Phase 1 Site Improvements are generally located on the south side of Country Vista Drive and east of Legacy Ridge Drive in Liberty Lake. The project site is currently vacant land with natural dryland grass and some coniferous trees. The land generally slopes from south along from the rear of the Legacy Ridge Subdivision to the North property line along country Vista Drive. Sharing this site is a large existing stormwater treatment swale with multiple drywell structures spread throughout. This drainage system was previously used as a flood plain overflow for drainage from the adjacent property, however the development of the Legacy Estate Subdivision located uphill and to the South of the proposed project has eliminated the majority of the stormwater that utilizes the existing facility. Therefore, additional capacity is available in the existing swale and it is anticipated to be used be utilized by this project.

As shown in Appendix A, the United States Department of Agriculture Natural Resources Conservation Service (NRCS) has identified 3 predominant soils types for the Legacy Villas Phase 1 Site Improvements. Lenz-Rock outcrop complex 3 to 15 percent slopes is the first identified soil type for the area. Lenz-Rock soils consist of granitic and metamorphic rock, covered with mixed loess and ash in the upper portions of the soil unit. Permeability of the Lenz-Rock outcrop 3 to 15 percent soils is considered to be well drained and the hazard of water erosion is slight. Typically, this type of soil has a very low ability of water storage yet has more than 80 inches' depth to the water table.

Lenz-Rock outcrop complex 15 to 30 percent slopes is the second identified soil type for the area. Lenz-Rock soils consist of granitic and metamorphic rock, covered with mixed loess and ash in the upper portions of the soil unit. Permeability of the Lenz-Rock outcrop 15 to 30 percent soils is considered to be well drained and the hazard of water erosion is slight. Typically, this type of soil has a very low ability of water storage yet has more than 80 inches' depth to the water table.

Urban Land-Opportunity, disturbed complex 3 to 8 percent slopes is the 3rd identified soil type for the area. Urban Land-Opportunity soils consist of sandy and gravelly glaciofluvial deposits with mixed loess and ash in the upper portions of the soil unit. Permeability of the Urban Land-Opportunity soils is considered to be well drained and the hazard of water erosion is slight. Typically, this type of soil has a low ability of water storage yet has more than 80 inches' depth to the water table.

The stormwater system proposed for the Legacy Villas Phase 1 Site Improvements project will consist of a system of catch basins and underground piping to collect and convey stormwater to existing biofiltration swales and shallow injection facilities shared by the multiple drainage basins. Drainage basins were designed to drain to the structures between the proposed buildings to be conveyed to appropriately sized

drainage swales with drywells. The roofs are directed to the stormwater treatment swales via roof gutters, downspouts and tight lines. The stormwater is mitigated through storage within the swale and infiltration into the ground. Drywells within the associated swales mitigate excess runoff through approved outflow rates of 0.3 cfs for a single depth drywell and 1.0 cfs for a double depth drywell.

The design analysis method used to determine the size of the stormwater facilities for this project conforms to the Spokane Regional Stormwater Manual – Biofiltration Swale. (208 Swale Design) The Bowstring Method was used to determine the required storage volume to affectively store the calculated stormwater runoff generated by a 25-year storm event

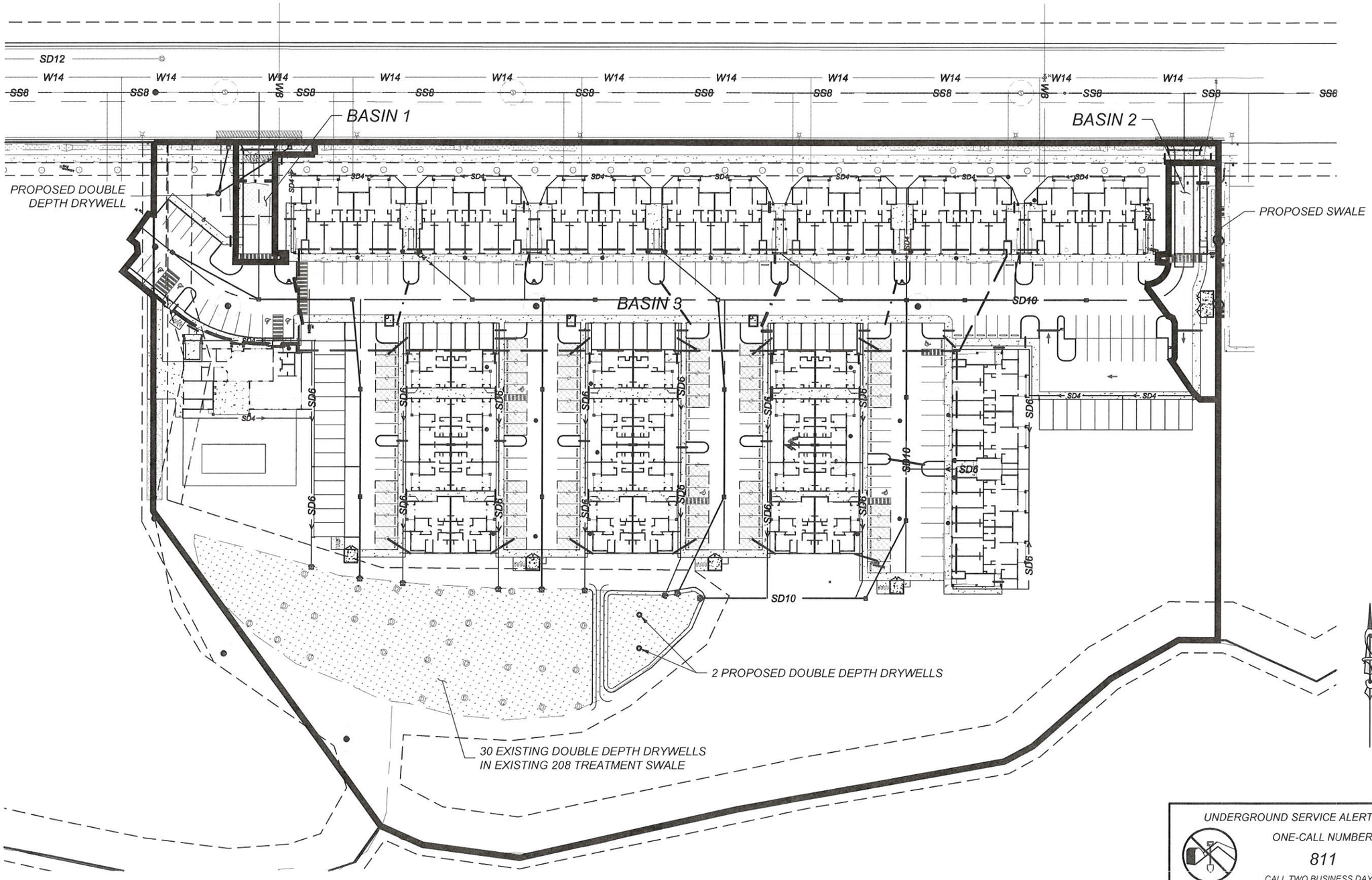
DRAINAGE BASIN MAP

The following map shows each of the drainage basins within the Legacy Villas Phase 1 Site Improvements.

LEGACY VILLAS PHASE 1

STORMWATER BASIN MAP

LIBERTY LAKE, SPOKANE COUNTY, WASHINGTON



UNDERGROUND SERVICE ALERT

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3909 N. SCHREIBER WAY, STE. 4
COEUR D'ALENE, IDAHO 83815
PHONE: 208.676.0230

PRELIMINARY
NOT FOR CONSTRUCTION

LEGACY VILLAS PHASE 1

STORMWATER BASIN MAP

IDAHO

DESIGNED BY:	PLM
DRAFTED BY:	PLM
DATE:	6/17/2016
JOB NO:	LCE 15-072
SCALE:	1" = 80

0 40 80 160

1 / 1

CALCULATIONS

The following design parameters are applied to the Biofiltration Swale ('208" Swale Design) Calculations:

- All drainage basins within the site improvements are well below 10 acres.
- Assumed uniform rainfall intensity based on IDF curve
- Treatment Factor of 0.083 (first inch) used.
- Dry well rims are 0.5' above swale bottom elevation and below nearest inlet low point or pipe outfall elevations.
- All drywells are no less than 10' from the nearest curb cut or pipe outfall.
- No swale check dams are required as swale grades are < 2%.
- Onsite concrete washout area is designated on plans by the Engineer of Record.
- All swales shall be dressed with minimum of 3" top soil and seeded with an appropriate grass mixture per the Spokane Regional Stormwater Manual.

SUMMARY

As shown in the Calculations Section of this report, the storm water treatment and storage facilities provided for this project meet or exceed the requirements set forth in the Spokane Regional Stormwater Manual.

Legacy Villas Phase 1 Site Improvements								
Post Development								
Basin	Total Area	Composite "C"	$Area_{imp}$	I_{25}	Q_{Runoff}	GIA Storage		
						Required	Provided	Drywell
	(ac)		(ft^2)	(in/hr.)	(cfs)	(ft^3)	(ft^3)	Type
1	0.06	0.90	2,624	3.32	0.18	68	254	1 DD
2	0.17	0.70	5,232	3.32	0.40	196	265	-
3	8.34	0.61	-	3.32	16.75	9,447	130,157	30-SD & 2DD

Legacy Villas Phase 1 Site Improvements						
Pre-Development						
Basin	Total Area	Composite "C"		$Area_{imp}$	I_{25}	Q_{Runoff}
	(ac)			(ft^2)	(in/hr.)	(cfs)
PRE	9.30	0.25		######	2.62	6.09

Stormwater Summary
Roof drainage shall be collected via roof gutters, downspout, and tightline to the 208 treatment swales with drywell facilities. Catchbasins collect and convey surface drainage via underground piping to 208 treamnet swales with drywell facilities.

STORMWATER HYDRAULIC ANALYSIS AND DESIGN

PROJECT:	**Legacy Villas Phase 1 Site Improvements**	JOB #:	**15-072**
CLIENT:		Date:	**6/17/2016**

Drainage or Basin Area: **Site Basin**

Case: **Pre Development Conditions no structures or driveways**

Approximate impervious area to disturbed: 0 sf.

II. DRAINAGE AREA

Drainage Area Description	Runoff Coefficient	Area (SF)	(acres)	A * C
Total Permeable Area:	0.25	405,292	9.30	2.33
Total Impervious Ground Area:	0.90		0.00	0.00
Total Impervious Roof Area:	0.90		0.00	0.00
Total Drainage or Basin Area:		**405,292 SF**	**9.30 AC**	
Calculated Composite "C" Factor:	**0.25**			

III. TIME OF CONCENTRATION

Description	Segment #1	Segment #2	Segment #3	Segment #4
Surface Type:	Bare Ground			
Segment Length "L" (ft):	500			
Slope "s" (ft/ft):	8.000	Assumed avg.		
Ground Cover "K" (ft/min):	150			
Calc. Time of Travel T_t =(L/K(s)^0.5):	**1.18**	**0.00**	**0.00**	**0.00**
Calculated Time of Concentration T_c *:	**1.18**	**minutes**		

* If less than 5.0 minutes, use 5.0 minutes as a minimum Time of Concentration or Duration

IV. STORM EVENT

Storm Return Period:	25	Years
Analysis Zone:		Obtain from Area Classification Map
Duration or Time of Concentration:	5.00	minutes (5 min minimum)
Rainfall Intensity for T_c:	2.62	in/hr Obtained from "IDF Curve"
Calc. Impervious Area Runoff Rate:	0.00 cfs	Ration Method Q=CiA
Calculated Total Area Runoff Rate:	**6.09 cfs**	**Ration Method Q=CiA**

V. OUTFLOW AND STORAGE

Drywell Capacities	Qty	Outflow		Storage
Type 1 Single Barrel Drywell @ 0.3 cfs:		0.00	cfs	0 CF
Type 2 Double Barrel Drywell @ 1.0 cfs:		0.00	cfs	0 CF
Calculated Total Outflow and Storage:		**0.00**	**cfs**	**0 CF**

STORMWATER DRAINAGE ANALYSIS AND DESIGN

PROJECT: **Legacy Villas Phase 1** JOB #: **15-072**
CLIENT: Date: **6/17/2016**
Drainage or Basin Area: .Basin 1
Case: **Post Development with total impervious area**

II. DRAINAGE AREA

Drainage Area Description	Runoff Coefficient	Area (SF)	(acres)	A * C
Total Permeable Area:	0.25	-	0.00	0.00
Total Impervious Ground Area:	0.90	2,624	0.06	0.05
Total Impervious Roof Area:	0.90	-	0.00	0.00
Total Drainage or Basin Area:		**2,624 SF**	**0.06 AC**	
Calculated Composite "C" Factor:	**0.90**			

III. TIME OF CONCENTRATION

Description	Segment #1	Segment #2	Segment #3	Segment #4
Surface Type:	Paved Areas			
Segment Length "L" (ft):	100			
Average Slope "s" (ft/ft):	2.000			
Ground Cover "K" (ft/min):	1200			
Calc. Time of Travel T_t =(L/K(s)^0.5):	**0.06**	**0.00**	**0.00**	**0.00**
Calc. Time of Concentration T_c *:	**0.06**	**minutes**		

* If less than 5.0 minutes, use 5.0 minutes as a minimum Time of Concentration or Duration

IV. STORM EVENT

Storm Return Period:	2 yr event	10 yr event	25 yr event
Analysis Zone:			
Duration or Time of Concentration:	5 min	5 min	5 min
Rainfall Intensity for T_c:	1.42 in/hr	2.62 in/hr	3.32 in/hr
Calc. Impervious Area Runoff Rate:	0.08 cfs	0.13 cfs	0.16 cfs
Calculated Total Area Runoff Rate:	**0.08 cfs**	**0.14 cfs**	**0.18 cfs**

V. OUTFLOW AND STORAGE

Drywell Capacities	Qty	Outflow		Storage
Type A Single Barrel Drywell @ 0.55 cfs:	0	0.00	cfs	0.0 CF
Type B Double Barrel Drywell @ 0.92 cfs:	1	0.92	cfs	109 CF
Calculated Total Outflow and Storage:		**0.92**	**cfs**	**109 CF**

VI. ROUTING CALCULATIONS USING THE BOWSTRING METHOD

Routing calcs applied to grassy infiltration area only.

Time (min)	Time (sec)	Intensity* (in/hr)	Q (cfs)	V_{IN} (CF)**	V_{OUT} (CF)	Storage (CF)
5	300	2.62	0.14	57	276	0
10	600	1.72	0.09	65	552	0
15	900	1.34	0.07	73	828	0
20	1200	1.13	0.06	79	1104	0
25	1500	0.98	0.05	85	1380	0
30	1800	0.88	0.05	91	1656	0
35	2100	0.80	0.04	96	1932	0
40	2400	0.74	0.04	100	2208	0
45	2700	0.69	0.04	104	2484	0
50	3000	0.64	0.03	108	2760	0
55	3300	0.61	0.03	112	3036	0
60	3600	0.58	0.03	116	3312	0
65	3900	0.55	0.03	119	3588	0

* Obtained from IDF Curve

** For Duration (t)≤Tc, Vin = 1.34 x (Q) x (T); Otherwise Duration (t) > Tc, Vin = (Q) x (T) + 0.34 x (Q) x Tc

VII. CALCULATED GIA AREA AND STORAGE CAPACITY

GIA Area Provided:	145	SF
Drywell Height Above GIA Bottom:	6	inches (6 inches maximum)
Total depth of GIA (bottom to top of berm):	12	inches

Calc. Treatment Volume Required (V):	**68 CF**	**(SRSM)**
Calc. Bottom Area Required (A):	**137 SF**	

GIA Area is Adequate

Calculated GIA Storage Provided:	145	CF
Calculated Drywell Storage Provided:	109	CF
Total Provided Storage Capacity:	254	CF
Calculated GIA Storage:	**111**	CF (Using Bowstring Method)

GIA Storage is Adequate

NOTE: Drainage of this basin is routed into the curb inlets along Country Vista Drive where it is treated in the existing grass swale and hard piped to a double depth drywell along drive aisle B.

STORMWATER DRAINAGE ANALYSIS AND DESIGN

PROJECT: **Legacy Villas Phase 1** JOB #: **15-072**

CLIENT: Date: **6/17/2016**

Drainage or Basin Area: Basin 2

Case: **Post Development with total impervious area**

II. DRAINAGE AREA

Drainage Area Description	Runoff Coefficient	Area (SF)	(acres)	A * C
Total Permeable Area:	0.25	2,306	0.05	0.01
Total Impervious Ground Area:	0.90	5,232	0.12	0.11
Total Impervious Roof Area:	0.90	-	0.00	0.00
Total Drainage or Basin Area:		**7,538 SF**	**0.17 AC**	
Calculated Composite "C" Factor:	**0.70**			

III. TIME OF CONCENTRATION

Description	Segment #1	Segment #2	Segment #3	Segment #4
Surface Type:	Paved Areas			
Segment Length "L" (ft):	115			
Average Slope "s" (ft/ft):	0.500			
Ground Cover "K" (ft/min):	1200			
Calc. Time of Travel T_t =(L/K(s)^0.5):	**0.14**	**0.00**	**0.00**	**0.00**
Calc. Time of Concentration T_c *:	**0.14**	**minutes**		

* If less than 5.0 minutes, use 5.0 minutes as a minimum Time of Concentration or Duration

IV. STORM EVENT

Storm Return Period:	2 yr event	10 yr event	25 yr event
Analysis Zone:			
Duration or Time of Concentration:	5 min	5 min	5 min
Rainfall Intensity for T_c:	1.42 in/hr	2.62 in/hr	3.32 in/hr
Calc. Impervious Area Runoff Rate:	0.15 cfs	0.25 cfs	0.32 cfs
Calculated Total Area Runoff Rate:	**0.17 cfs**	**0.32 cfs**	**0.40 cfs**

V. OUTFLOW AND STORAGE

Drywell Capacities	Qty	Outflow		Storage
Type A Single Barrel Drywell @ 0.55 cfs:	0	0.00	cfs	0.0 CF
Type B Double Barrel Drywell @ 0.92 cfs:	0	0.00	cfs	0 CF
Calculated Total Outflow and Storage:		**0.00**	**cfs**	**0 CF**

VI. ROUTING CALCULATIONS USING THE BOWSTRING METHOD

Routing calcs applied to grassy infiltration area only.

Time (min)	Time (sec)	Intensity* (in/hr)	Q (cfs)	V_{IN} (CF)**	V_{OUT} (CF)	Storage (CF)
5	300	2.62	0.32	128	0	128
10	600	1.72	0.21	146	0	146
15	900	1.34	0.16	163	0	163
20	1200	1.13	0.14	178	0	178
25	1500	0.98	0.12	191	0	191
30	1800	0.88	0.11	203	0	203
35	2100	0.80	0.10	214	0	214
40	2400	0.74	0.09	224	0	224
45	2700	0.69	0.08	234	0	234
50	3000	0.64	0.08	243	0	243
55	3300	0.61	0.07	251	0	251
60	3600	0.58	0.07	259	0	259
65	3900	0.55	0.07	267	0	267

* Obtained from IDF Curve

** For Duration (t)≤Tc, Vin = 1.34 x (Q) x (T); Otherwise Duration (t) > Tc, Vin = (Q) x (T) + 0.34 x (Q) x Tc

VII. CALCULATED GIA AREA AND STORAGE CAPACITY

GIA Area Provided:	265	SF
Storage Height Above GIA Bottom:	12	inches
Total depth of GIA (bottom to top of berm):	12	inches
Calc. Treatment Volume Required (V):	**196 CF**	**(SRSM)**
Calc. Bottom Area Required (A):	**196 SF**	

GIA Area is Adequate

Calculated GIA Storage Provided:	265	CF
Calculated Drywell Storage Provided:	0	CF
Total Provided Storage Capacity:	265	CF
Calculated GIA Storage:	**111**	CF (Using Bowstring Method)

GIA Storage is Adequate

NOTE: Drive aisle runoff is directed to a grass lined 208 treatment swale along the east edge of the project.

STORMWATER DRAINAGE ANALYSIS AND DESIGN

PROJECT: **Legacy Villas Phase 1** JOB #: **15-072**

CLIENT: Date: **6/17/2016**

Drainage or Basin Area: Basin 3

Case: **Post Development with total impervious area**

II. DRAINAGE AREA

Drainage Area Description	Runoff Coefficient	Area (SF)	(acres)	A * C
Total Permeable Area:	0.25	164,833	3.78	0.95
Total Impervious Ground Area:	0.90	99,445	2.28	2.05
Total Impervious Roof Area:	0.90	98,932	2.27	2.04
Total Drainage or Basin Area:		**363,210 SF**	**8.34 AC**	
Calculated Composite "C" Factor:	**0.61**			

III. TIME OF CONCENTRATION

Description	Segment #1	Segment #2	Segment #3	Segment #4
Surface Type:	Paved Areas			
Segment Length "L" (ft):	565			
Average Slope "s" (ft/ft):	1.500			
Ground Cover "K" (ft/min):	1200			
Calc. Time of Travel T_t=(L/K(s)^0.5):	**0.38**	**0.00**	**0.00**	**0.00**
Calc. Time of Concentration T_c*:	**0.38**	**minutes**		

* If less than 5.0 minutes, use 5.0 minutes as a minimum Time of Concentration or Duration

IV. STORM EVENT

Storm Return Period:	2 yr event	10 yr event	25 yr event
Analysis Zone:			
Duration or Time of Concentration:	5 min	5 min	5 min
Rainfall Intensity for T_c:	1.42 in/hr	2.62 in/hr	3.32 in/hr
Calc. Impervious Area Runoff Rate:	5.82 cfs	9.66 cfs	12.25 cfs
Calculated Total Area Runoff Rate:	**7.16 cfs**	**13.22 cfs**	**16.75 cfs**

V. OUTFLOW AND STORAGE

Drywell Capacities	Qty	Outflow		Storage
Type A Single Barrel Drywell @ 0.55 cfs:	0	0.00	cfs	0.0 CF
Type B Double Barrel Drywell @ 0.92 cfs:	32	29.44	cfs	3,497 CF
Calculated Total Outflow and Storage:		**29.44**	**cfs**	**3,497 CF**

VI. ROUTING CALCULATIONS USING THE BOWSTRING METHOD

Routing calcs applied to grassy infiltration area only.

Time (min)	Time (sec)	Intensity* (in/hr)	Q (cfs)	V_{IN} (CF)**	V_{OUT} (CF)	Storage (CF)
5	300	2.62	13.21	5312	8832	0
10	600	1.72	8.66	6082	17664	0
15	900	1.34	6.77	6781	26496	0
20	1200	1.13	5.68	7396	35328	0
25	1500	0.98	4.96	7943	44160	0
30	1800	0.88	4.44	8440	52992	0
35	2100	0.80	4.04	8896	61824	0
40	2400	0.74	3.72	9318	70656	0
45	2700	0.69	3.47	9713	79488	0
50	3000	0.64	3.25	10085	88320	0
55	3300	0.61	3.07	10436	97152	0
60	3600	0.58	2.91	10770	105984	0
65	3900	0.55	2.77	11089	114816	0

* Obtained from IDF Curve

** For Duration (t)≤Tc, Vin = 1.34 x (Q) x (T); Otherwise Duration (t) > Tc, Vin = (Q) x (T) + 0.34 x (Q) x Tc

VII. CALCULATED GIA AREA AND STORAGE CAPACITY

GIA Area Provided:	31665	SF
Storage Height Above GIA Bottom:	6	inches (6 inches maximum)
Total depth of GIA (bottom to top of berm):	48	inches

Calc. Treatment Volume Required (V):	**9,447 CF**	**(SRSM)**
Calc. Bottom Area Required (A):	**18,894 SF**	

GIA Area is Adequate

Calculated GIA Storage Provided:	126660	CF
Calculated Drywell Storage Provided:	3497	CF
Total Provided Storage Capacity:	130157	CF
Calculated GIA Storage:	**111**	CF (Using Bowstring Method)

GIA Storage is Adequate

NOTE: Drainage basin 3 includes all undisturbed natural areas outside of the project work area. Basin 3 utilizes the existing stormwater 208 treatment swale and drywell facilities and assumes that all existing structures to be double depth structures until verified.

Intensity-Duration-Frequency Curve

Washington State Rainfall Coefficients

Coefficient	*2 yr*	*10 yr*	*25 yr*	*50 yr*	*100 yr*
m	*3.47*	*6.98*	*9.09*	*10.68*	*12.33*
n	*0.556*	*0.609*	*0.626*	*0.635*	*0.643*

Intensity (inches per hour)

	2 yr event	**10 yr event**	**25 yr event**	**50 yr event**	**100 yr event**
5 min	1.42	2.62	3.32	3.84	4.38
10 min	0.96	1.72	2.15	2.47	2.81
15 min	0.77	1.34	1.67	1.91	2.16
20 min	0.66	1.13	1.39	1.59	1.80
25 min	0.58	0.98	1.21	1.38	1.56
30 min	0.52	0.88	1.08	1.23	1.38
35 min	0.48	0.80	0.98	1.12	1.25
40 min	0.45	0.74	0.90	1.03	1.15
45 min	0.42	0.69	0.84	0.95	1.07
50 min	0.39	0.64	0.79	0.89	1.00
55 min	0.37	0.61	0.74	0.84	0.94
60 min	0.36	0.58	0.70	0.79	0.89
65 min	0.34	0.55	0.67	0.75	0.84
1 hr	0.36	0.58	0.70	0.79	0.89
2 hr	0.24	0.38	0.45	0.51	0.57
4 hr	0.16	0.25	0.29	0.33	0.36
6 hr	0.13	0.19	0.23	0.25	0.28
8 hr	0.11	0.16	0.19	0.21	0.23
10 hr	0.10	0.14	0.17	0.18	0.20
12 hr	0.09	0.13	0.15	0.16	0.18
14 hr	0.08	0.12	0.13	0.15	0.16
16 hr	0.08	0.11	0.12	0.14	0.15
18 hr	0.07	0.10	0.11	0.13	0.14
20 hr	0.07	0.09	0.11	0.12	0.13
22 hr	0.06	0.09	0.10	0.11	0.12
24 hr	0.06	0.08	0.10	0.11	0.11

RUNOFF COEFFICIENTS FOR THE RATIONAL METHOD

Type of Cover	FLAT <2%	ROLLING 2% - 10%	HILLY > 10%
Pavement and Roofs	0.90	0.90	0.90
Earth Shoulders	0.50	0.50	0.50
Drives and Walks	0.75	0.80	0.85
Gravel Pavement	0.85	0.85	0.85
City Business Areas	0.80	0.85	0.85
Apartment Dwelling Areas	0.50	0.60	0.70
Light Residential: 1 to 3 units/acre	0.35	0.40	0.45
Normal Residential: 3 to 6 units/acre	0.50	0.55	0.60
Dense Residential: 6 to 15 units/acre	0.70	0.75	0.80
Lawns	0.17	0.22	0.35
Grass Shoulders	0.25	0.25	0.25
Side Slopes, Earth	0.60	0.60	0.60
Side Slopes, Turf	0.30	0.30	0.30
Median Areas, Turf	0.25	0.30	0.30
Cultivated Land, Clay and Loam	0.50	0.55	0.60
Cultivated Land, Sand and Gravel	0.25	0.30	0.35
Industrial Areas, Light	0.50	0.70	0.80
Industrial Areas, Heavy	0.60	0.80	0.90
Parks and Cemeteries	0.10	0.15	0.25
Playgrounds	0.20	0.25	0.30
Woodland and Forest	0.10	0.15	0.20
Meadow and Pasture Land	0.25	0.30	0.35
Unimproved Areas	0.10	0.20	0.30

GROUND COVER COEFFICIENTS

Type of Ground Cover	K (ft/min)
Forest With Heavy Ground Cover	150
Minimum Tillage Cultivation	280
Short Pasture Grass Or Lawn	420
Nearly Bare Ground	600
Small Roadside Ditch W/Grass	900
Paved Area	1200
Gutter Flow:	
4 inches deep	1500
6 inches deep	2400
8 inches deep	3100
Storm Sewers:	
12 inch diameter	3000
18 inch diameter	3900
24 inch diameter	4700
Open Channel Flow (n = .040):	
12 inches deep	1100
Narrow Channel (w/d =1):	
2 feet deep	1800
4 feet deep	2800
Open Channel Flow (n = .040):	
1 foot deep	2000
Wide Channel (w/d =9):	
2 feet deep	3100
4 feet deep	5000

APPENDIX A
NRCS SOILS REPORT

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Spokane County, Washington

Legacy Villas

June 17, 2016

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (http://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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Contents

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the

individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features

- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Spokane County, Washington
Survey Area Data: Version 6, Sep 25, 2015

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Data not available.

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Spokane County, Washington (WA063)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
5072	Lenz-Rock outcrop complex, 3 to 15 percent slopes	4.6	35.1%
5073	Lenz-Rock outcrop complex, 15 to 30 percent slopes	3.5	26.9%
7111	Urban land-Opportunity, disturbed complex, 3 to 8 percent slopes	5.0	37.9%
Totals for Area of Interest		**13.1**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that

have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Spokane County, Washington

5072—Lenz-Rock outcrop complex, 3 to 15 percent slopes

Map Unit Setting

National map unit symbol: 2wby
Elevation: 1,700 to 3,600 feet
Mean annual precipitation: 18 to 22 inches
Mean annual air temperature: 42 to 50 degrees F
Frost-free period: 90 to 130 days
Farmland classification: Not prime farmland

Map Unit Composition

Lenz and similar soils: 40 percent
Rock outcrop: 25 percent
Minor components: 35 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Lenz

Setting

Landform: Hills
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Side slope, nose slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loess mixed with minor amounts of volcanic ash over residuum and/or colluvium derived from granitic and metamorphic rocks

Typical profile

Oi - 0 to 1 inches: slightly decomposed plant material
A1 - 1 to 4 inches: very gravelly ashy sandy loam
A2 - 4 to 9 inches: very gravelly ashy sandy loam
Bw1 - 9 to 14 inches: very gravelly ashy sandy loam
Bw2 - 14 to 26 inches: very cobbly sandy loam
C - 26 to 38 inches: extremely stony sandy loam
R - 38 to 48 inches: bedrock

Properties and qualities

Slope: 3 to 15 percent
Depth to restrictive feature: 21 to 41 inches to lithic bedrock
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Very low (about 2.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4s
Hydrologic Soil Group: B
Other vegetative classification: ponderosa pine/common snowberry (CN170)

Description of Rock Outcrop

Typical profile

R - 0 to 60 inches: bedrock

Properties and qualities

Slope: 3 to 15 percent
Depth to restrictive feature: 0 inches to lithic bedrock

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8

Minor Components

Swakane

Percent of map unit: 14 percent
Landform: Ridges on mountains, hills
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Interfluve, nose slope
Down-slope shape: Convex
Across-slope shape: Convex
Other vegetative classification: ponderosa pine/Idaho fescue (CN140)

Spokane

Percent of map unit: 10 percent
Landform: Hills
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Nose slope, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Other vegetative classification: ponderosa pine/common snowberry (CN170)

Clayton

Percent of map unit: 5 percent
Landform: Terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Other vegetative classification: ponderosa pine/common snowberry (CN170)

Micapeak

Percent of map unit: 5 percent
Landform: Ridges, hills
Landform position (two-dimensional): Shoulder, summit, backslope
Landform position (three-dimensional): Interfluve, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Other vegetative classification: Douglas-fir/ninebark (CN260)

Hardesty

Percent of map unit: 1 percent
Landform: Drainageways
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Other vegetative classification: ponderosa pine/ninebark (CN190)

5073—Lenz-Rock outcrop complex, 15 to 30 percent slopes

Map Unit Setting

National map unit symbol: 2wbz
Elevation: 1,700 to 3,600 feet
Mean annual precipitation: 18 to 24 inches
Mean annual air temperature: 42 to 50 degrees F
Frost-free period: 90 to 130 days
Farmland classification: Not prime farmland

Map Unit Composition

Lenz and similar soils: 50 percent
Rock outcrop: 20 percent
Minor components: 30 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Lenz

Setting

Landform: Hills
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Side slope, nose slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loess mixed with minor amounts of volcanic ash over residuum and/or colluvium derived from granitic and metamorphic rocks

Typical profile

Oi - 0 to 1 inches: slightly decomposed plant material
A1 - 1 to 4 inches: very gravelly ashy sandy loam
A2 - 4 to 9 inches: very gravelly ashy sandy loam
Bw1 - 9 to 14 inches: very gravelly ashy sandy loam
Bw2 - 14 to 26 inches: very cobbly sandy loam
C - 26 to 38 inches: extremely stony sandy loam
R - 38 to 48 inches: bedrock

Properties and qualities

Slope: 15 to 30 percent
Depth to restrictive feature: 21 to 41 inches to lithic bedrock
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Very low (about 2.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s

Hydrologic Soil Group: B
Other vegetative classification: ponderosa pine/common snowberry (CN170)

Description of Rock Outcrop

Typical profile
R - 0 to 60 inches: bedrock

Properties and qualities
Slope: 15 to 30 percent
Depth to restrictive feature: 0 inches to lithic bedrock

Interpretive groups
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8

Minor Components

Swakane
Percent of map unit: 14 percent
Landform: Ridges, hills
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Side slope, nose slope
Down-slope shape: Convex
Across-slope shape: Convex
Other vegetative classification: ponderosa pine/Idaho fescue (CN140)

Spokane
Percent of map unit: 10 percent
Landform: Hills
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Nose slope, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Other vegetative classification: ponderosa pine/common snowberry (CN170)

Micapeak
Percent of map unit: 6 percent
Landform: Ridges, hills
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Other vegetative classification: Douglas-fir/ninebark (CN260)

7111—Urban land-Opportunity, disturbed complex, 3 to 8 percent slopes

Map Unit Setting
National map unit symbol: 2mdmx
Elevation: 1,800 to 2,200 feet
Mean annual precipitation: 18 to 20 inches

Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 100 to 130 days
Farmland classification: Not prime farmland

Map Unit Composition

Urban land: 60 percent
Opportunity, disturbed, and similar soils: 35 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Urban Land

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8

Description of Opportunity, Disturbed

Setting

Landform: Outwash plains
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Sandy and gravelly glaciofluvial deposits with minor amounts of volcanic ash and loess in the upper part

Typical profile

Ap - 0 to 7 inches: very gravelly ashy loam
A1 - 7 to 13 inches: extremely gravelly ashy loam
A2 - 13 to 19 inches: extremely gravelly ashy loam
Bw1 - 19 to 33 inches: extremely gravelly loam
Bw2 - 33 to 43 inches: extremely gravelly loam
Bq - 43 to 53 inches: extremely gravelly loamy coarse sand
BCk - 53 to 60 inches: extremely gravelly coarse sand

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 2 percent
Salinity, maximum in profile: Nonsaline (0.0 to 0.2 mmhos/cm)
Available water storage in profile: Low (about 4.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4s
Hydrologic Soil Group: C
Other vegetative classification: ponderosa pine/Idaho fescue (CN140)

Minor Components

Garrison, disturbed
Percent of map unit: 1 percent
Landform: Outwash plains
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Other vegetative classification: ponderosa pine/bluebunch wheatgrass (CN130)

Marblespring, disturbed
Percent of map unit: 1 percent
Landform: Outwash terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Other vegetative classification: ponderosa pine/bluebunch wheatgrass (CN130)

Hardesty, disturbed
Percent of map unit: 1 percent
Landform: Depressions, drainageways
Landform position (three-dimensional): Tread
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Other vegetative classification: ponderosa pine/ninebark (CN190)

Springdale, disturbed
Percent of map unit: 1 percent
Landform: Outwash terraces
Landform position (three-dimensional): Riser
Down-slope shape: Linear
Across-slope shape: Linear
Other vegetative classification: ponderosa pine/common snowberry (CN170)

Bong, moist, disturbed
Percent of map unit: 1 percent
Landform: Outwash plains
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Other vegetative classification: ponderosa pine/common snowberry (CN170)

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