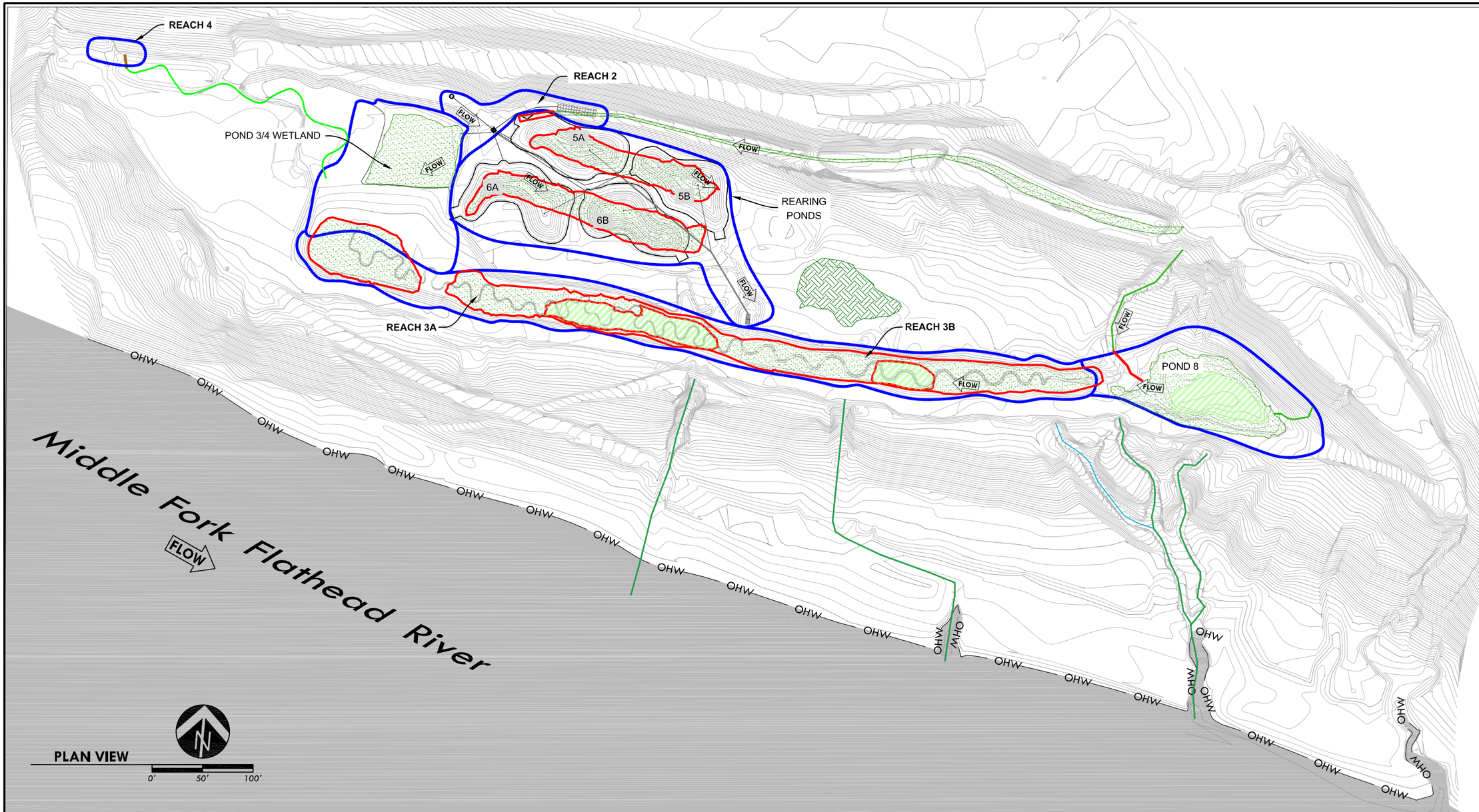

LEGEND

- EMERGENT WETLAND
- OPEN WATER WETLAND
- FORESTED WETLAND
- WATERS OF THE U.S.
- IMPACTED WETLANDS
- OHW — ORDINARY HIGH WATER

IMPACTED WETLANDS

EMERGENT WETLAND	0.70 ACRES
OPEN WATER WETLAND	0.11 ACRES
WATERS OF THE U.S.	< 0.01 ACRES

WETLAND FILLS

	WOOD	ROCK	NATIVE SOIL
EMERGENT WETLAND	11 CY	23 CY	533 CY
OPEN WATER WETLAND	1 CY	3 CY	57 CY
WATERS OF THE U.S.	0 CY	45 CY	10 CY

APPLICABLE TECHNICAL SPECIFICATIONS

01400	CONSTRUCTION STAKING
01560	ENVIRONMENTAL CONTROLS
01600	PROTECTION OF MATERIALS
02160	SITE PREPARATION
01560	ENVIRONMENTAL CONTROLS
02140	DEWATERING AND WORK AREA ISOLATION

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WETLAND IMPACTS

NO.	DATE	BY	DESCRIPTION	CHK
1	4-15-13	NW	Preliminary Design - 65%	CN
2	7-01-13	JL	95% Design	MD
3	11-12-14	NW	FINAL DESIGN	MD

PROJECT NUMBER
RDG-13-004

SHEET NUMBER
4.3

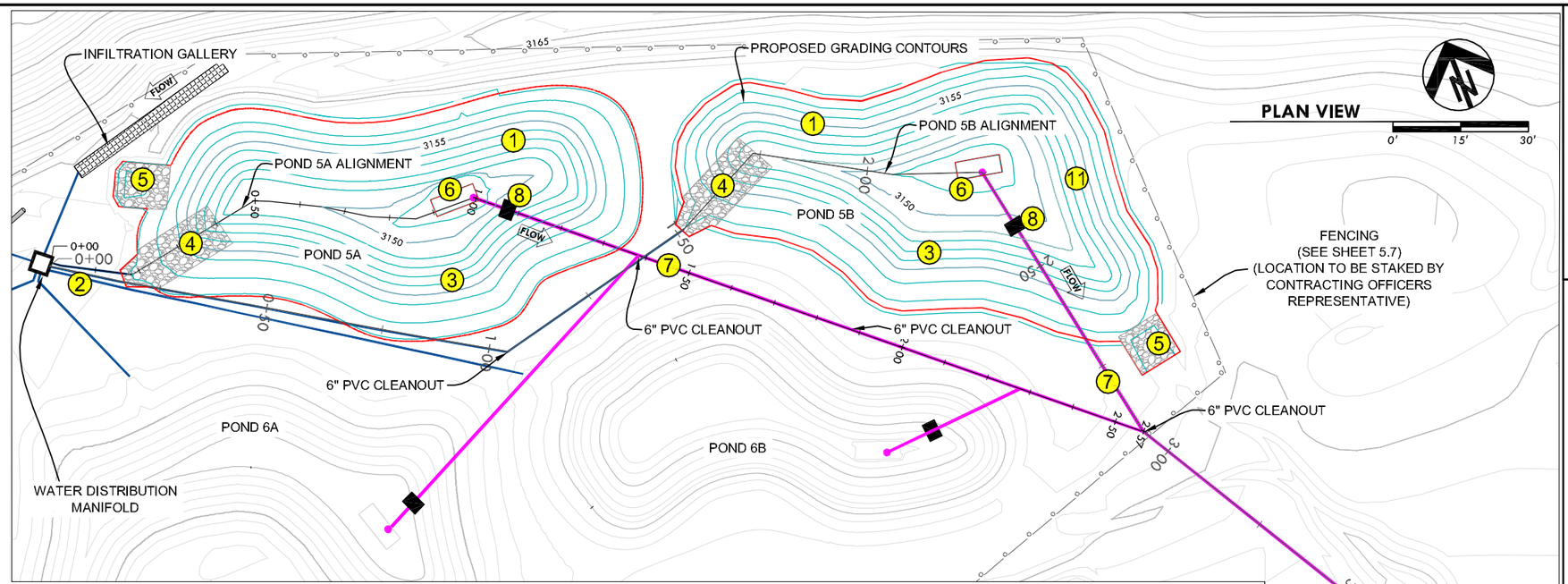
CONSTRUCTION NOTES

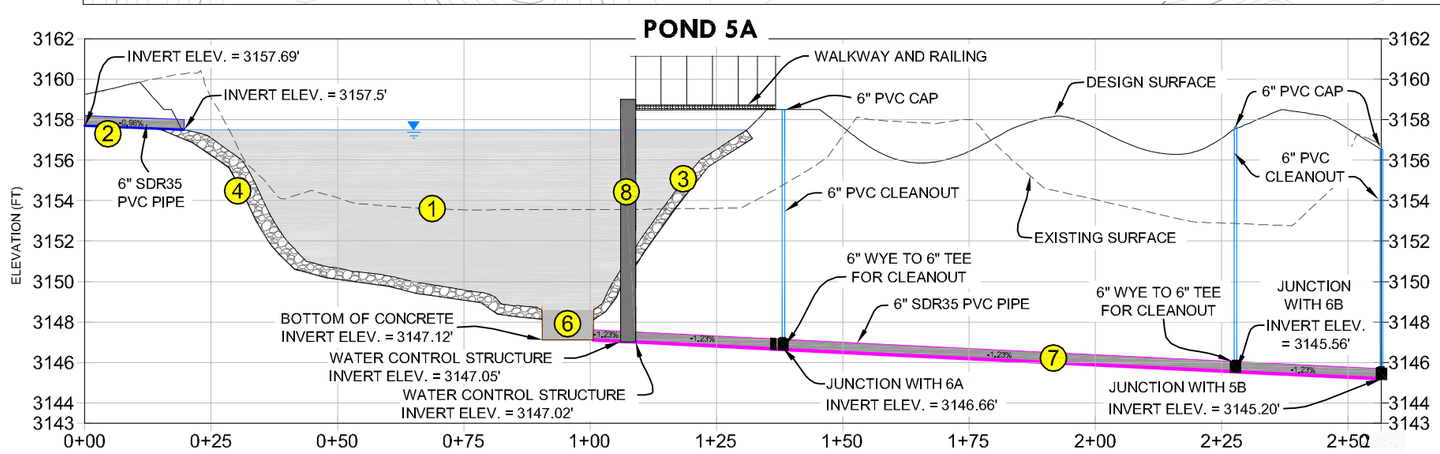
1. EXCAVATE AND GRADE REARING PONDS
2. INSTALL POND INLET PIPING
3. INSTALL GEOSYNTHETIC CLAY LINER (GCL), GCL FILL AND A 6-IN THICK AGGREGATE CUSHION OF 4-IN TO 6-IN ANGULAR ROCK.
4. CONSTRUCT V-SHAPED ARMORED INLET CHANNEL WITH FILTER FABRIC OVERLAID WITH 12-INCH RIPRAP (25 FEET LONG BY 10 FEET WIDE BY 1.5 FEET THICK, 0.5 FEET DEEP V-NOTCH). OMIT AGGREGATE CUSHION AT ARMORED INLET.
5. CONSTRUCT ARMORED SPILLWAY WITH 4"-6" MINUS ANGULAR ROCK COVERED WITH FILTER FABRIC. FABRIC TO BE OVERLAID WITH 12-INCH RIPRAP (10 FEET LONG BY 10 FEET WIDE BY 1.5 FEET THICK)
6. INSTALL KETTLE DRAIN PER DRAWING 5.4
7. INSTALL POND OUTLET PIPING
8. INSTALL WATER CONTROL STRUCTURE PER DRAWING 5.5
9. INSTALL STILLING BASIN AND FISH BARRIER PER DRAWING 5.6
10. GRADE RIPRAP CHANNEL TO REACH 3
11. PERFORM COMPACTION TESTING USING INDEPENDENT TESTING COMPANY

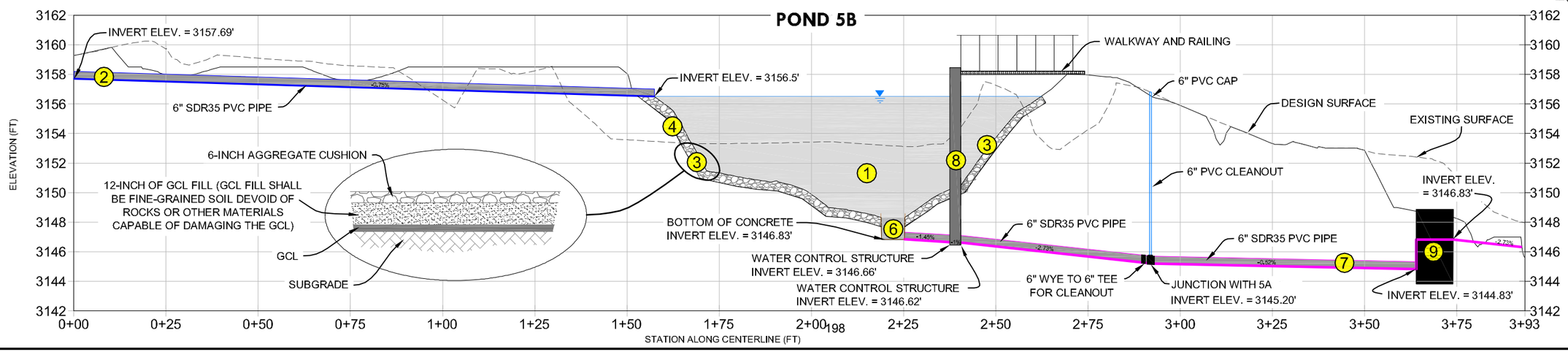
APPLICABLE TECHNICAL SPECIFICATIONS

01300 SUBMITTALS
01400 CONSTRUCTION STAKING
01560 ENVIRONMENTAL CONTROLS
01600 PROTECTION OF MATERIALS
02140 DEWATERING AND WORK AREA ISOLATION
02160 SITE PREPARATION
02200 EARTHWORK
02410 GEOSYNTHETIC CLAY LINER
04100 PIPE INSTALLATION
04200 PIPE MATERIALS AND FITTINGS
05001 CHANNEL AND FLOODPLAIN FILL

NOTE: FWP TO PROVIDE ALL FISH SCREENS







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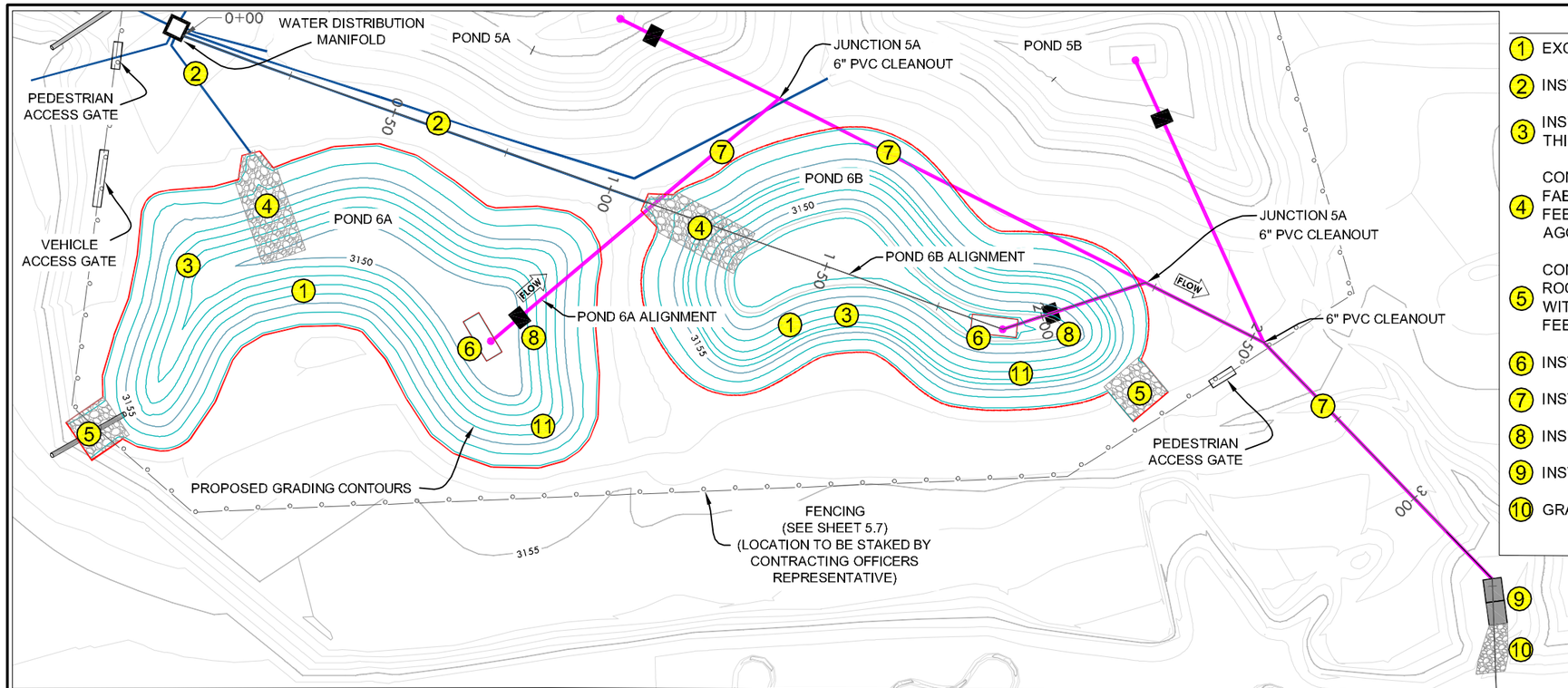
REARING PONDS 5A AND 5B PLAN AND PROFILE

NO.	DATE	BY	DESCRIPTION	CHK
1	4-15-13	NW	Preliminary Design - 65%	CN
2	07-01-13	NW	95% Design	CN
3	11-12-14	NW	FINAL DESIGN	MD
4	1-07-15	NW	REVISION	MD

PROJECT NUMBER
RDG-13-004

SHEET NUMBER
5.0



CONSTRUCTION NOTES

1. EXCAVATE AND GRADE REARING PONDS
2. INSTALL POND INLET PIPING
3. INSTALL GEOSYNTHETIC CLAY LINER (GCL), GCL FILL AND A 6-IN THICK AGGREGATE CUSHION OF 4-IN TO 6-IN ANGULAR ROCK.
4. CONSTRUCT V-SHAPED ARMORED INLET CHANNEL WITH FILTER FABRIC OVERLAID WITH 12-INCH RIPRAP (25 FEET LONG BY 10 FEET WIDE BY 1.5 FEET THICK, 0.5 FEET DEEP V-NOTCH). OMIT AGGREGATE CUSHION AT ARMORED INLET.
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9. INSTALL STILLING BASIN AND FISH BARRIER PER DRAWING 5.6
10. GRADE RIPRAP CHANNEL TO REACH 3
11. PERFORM COMPACTION TESTING USING INDEPENDENT TESTING COMPANY

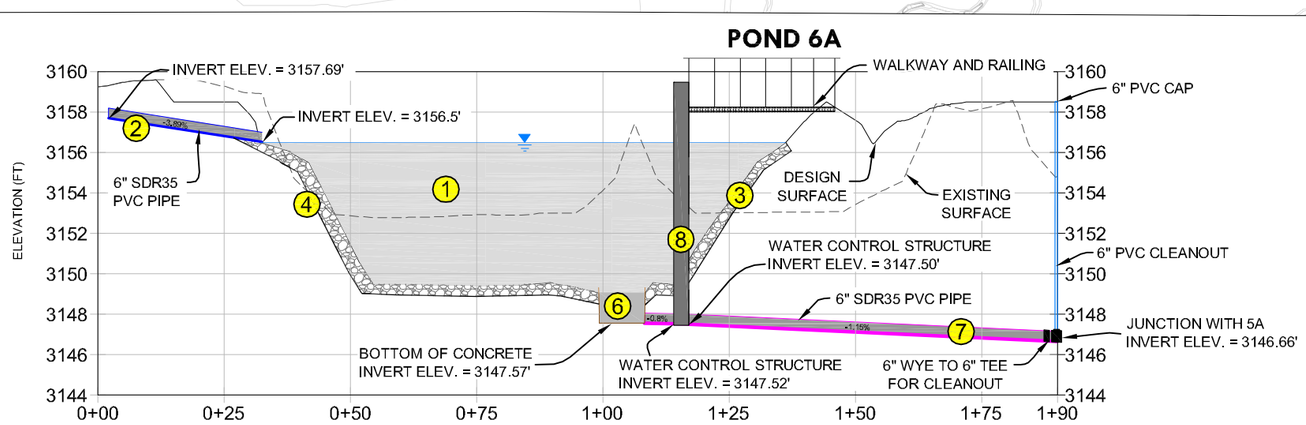
PLAN VIEW

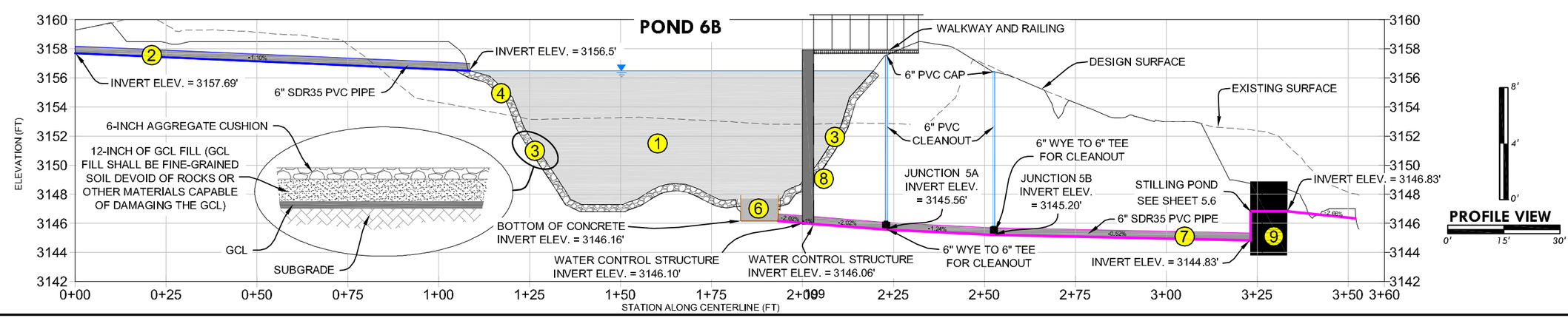
0' 15' 30'

NOTE: FWP TO PROVIDE ALL FISH SCREENS

APPLICABLE TECHNICAL SPECIFICATIONS

01300 SUBMITTALS
01400 CONSTRUCTION STAKING
01560 ENVIRONMENTAL CONTROLS
01600 PROTECTION OF MATERIALS
02140 DEWATERING AND WORK AREA ISOLATION
02160 SITE PREPARATION
02200 EARTHWORK
02410 GEOSYNTHETIC CLAY LINER
04100 PIPE INSTALLATION
04200 PIPE MATERIALS AND FITTINGS
05001 CHANNEL AND FLOODPLAIN FILL





PROFILE VIEW

0' 15' 30'

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REARING PONDS 6A AND 6B PLAN AND PROFILE

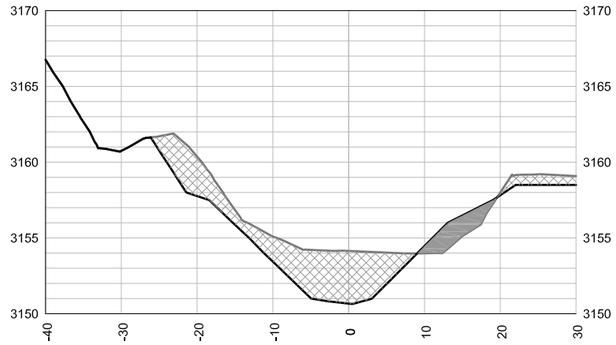
NO.	DATE	BY	DESCRIPTION	CHK
1	4-15-13	NW	Preliminary Design - 65%	CN
2	07-01-13	NW	95% Design	CN
3	11-12-14	NW	FINAL DESIGN	MD
4	1-07-15	NW	REVISION	MD

PROJECT NUMBER
RDG-13-004

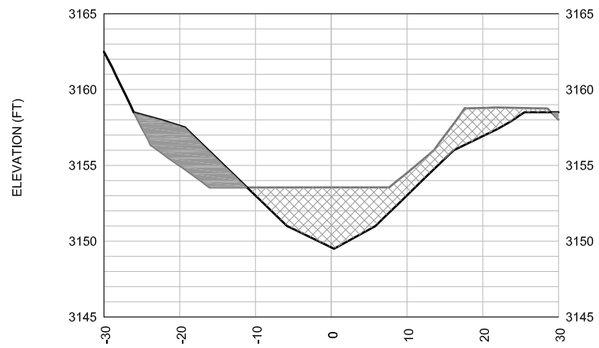
SHEET NUMBER
5.1

REARING POND 5A CROSS SECTIONS

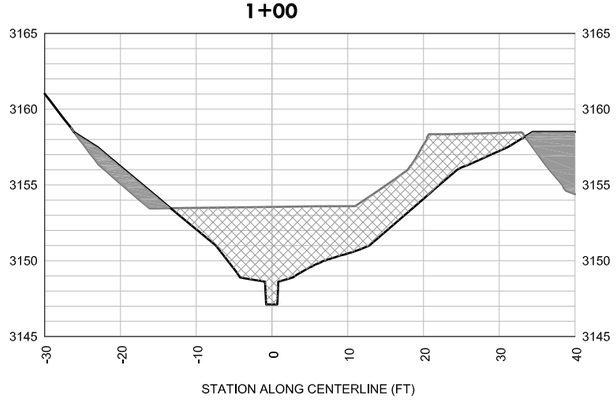
0+50



0+75



1+00



LEGEND

EXISTING GROUND	CUT
DESIGN GROUND	FILL

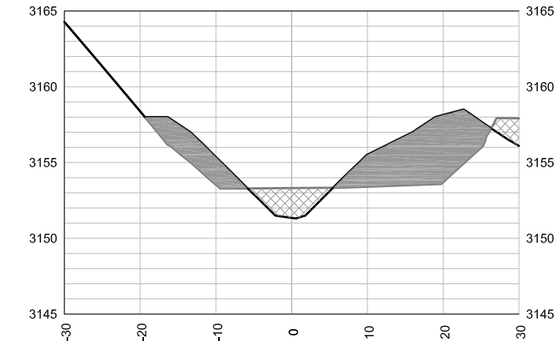
SECTION VIEW

0' 10' 20'

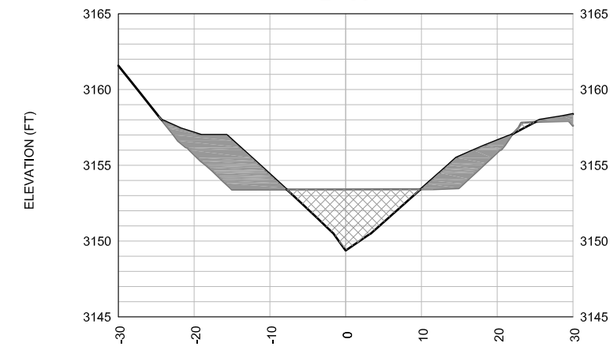
10' 5' 0'

REARING POND 5B CROSS SECTIONS

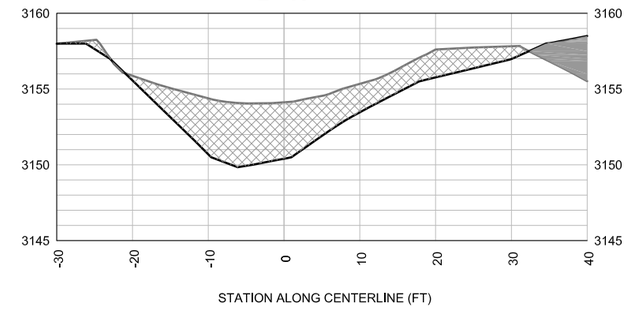
1+75



2+00



2+40



LEGEND

EXISTING GROUND	CUT
DESIGN GROUND	FILL

SECTION VIEW

0' 10' 20'

10' 5' 0'

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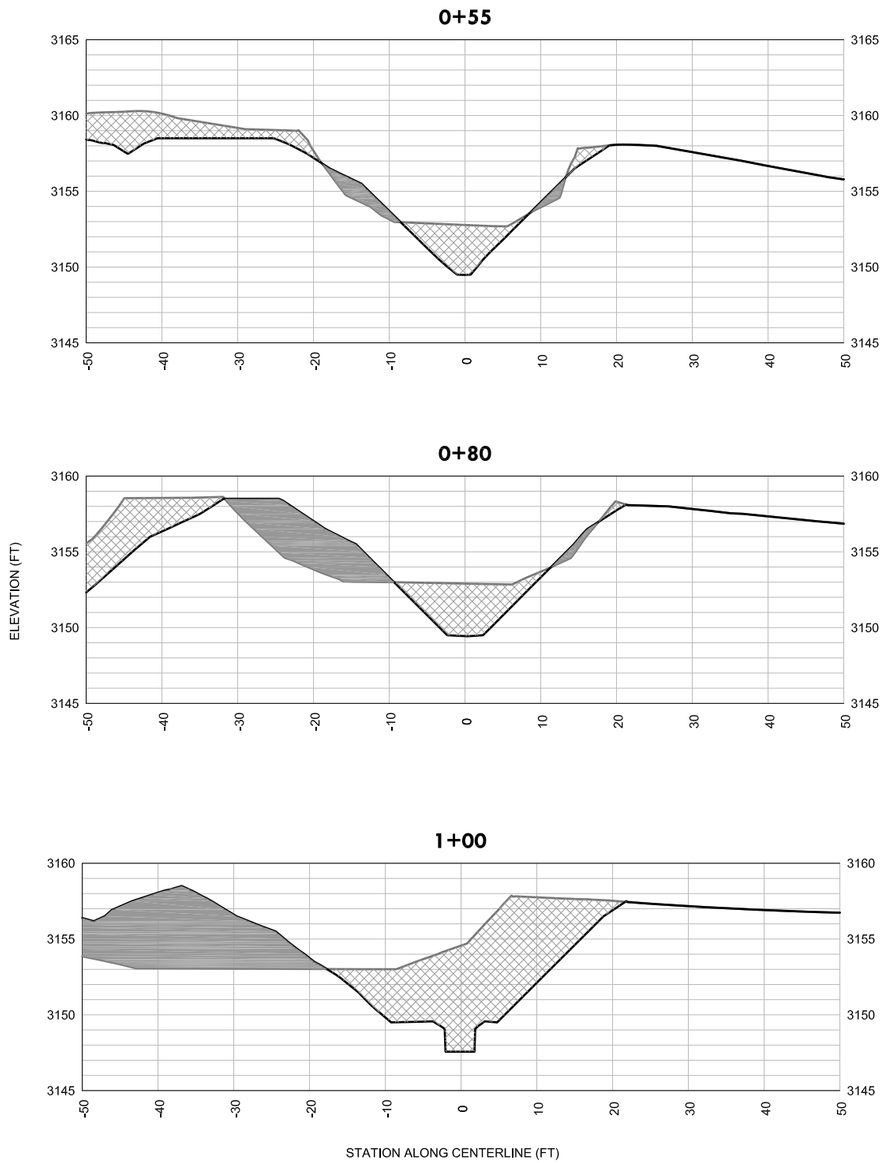
REARING PONDS 5A AND 5B CROSS SECTIONS

NO.	DATE	BY	DESCRIPTION	CHK
1	07-01-13	NW	95% Design	CN
2	11-12-14	NW	FINAL DESIGN	NW

PROJECT NUMBER
RDG-13-004

SHEET NUMBER
5.2

REARING POND 6A CROSS SECTIONS



LEGEND

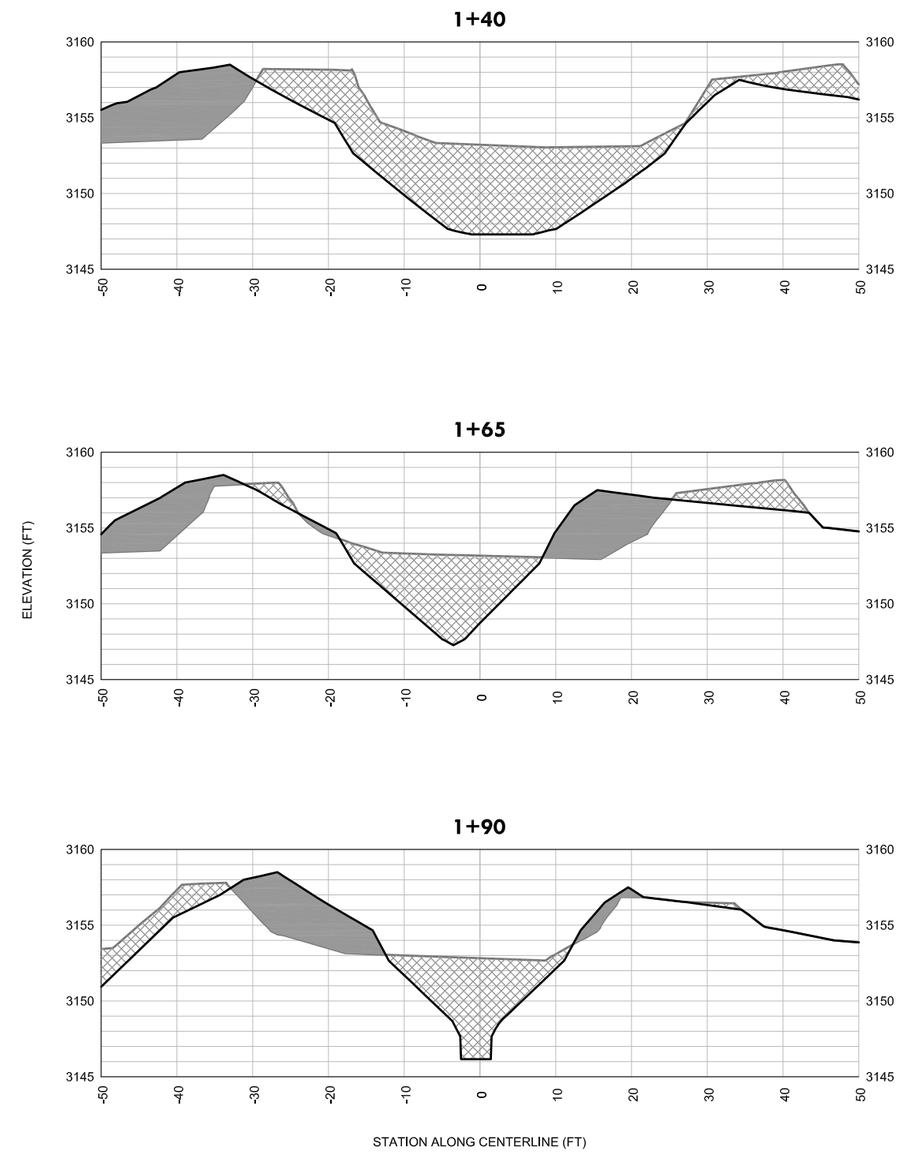
EXISTING GROUND	CUT
DESIGN GROUND	FILL

SECTION VIEW

0' 10' 20'

10' 5' 0'

REARING POND 6B CROSS SECTIONS



LEGEND

EXISTING GROUND	CUT
DESIGN GROUND	FILL

SECTION VIEW

0' 10' 20'

10' 5' 0'

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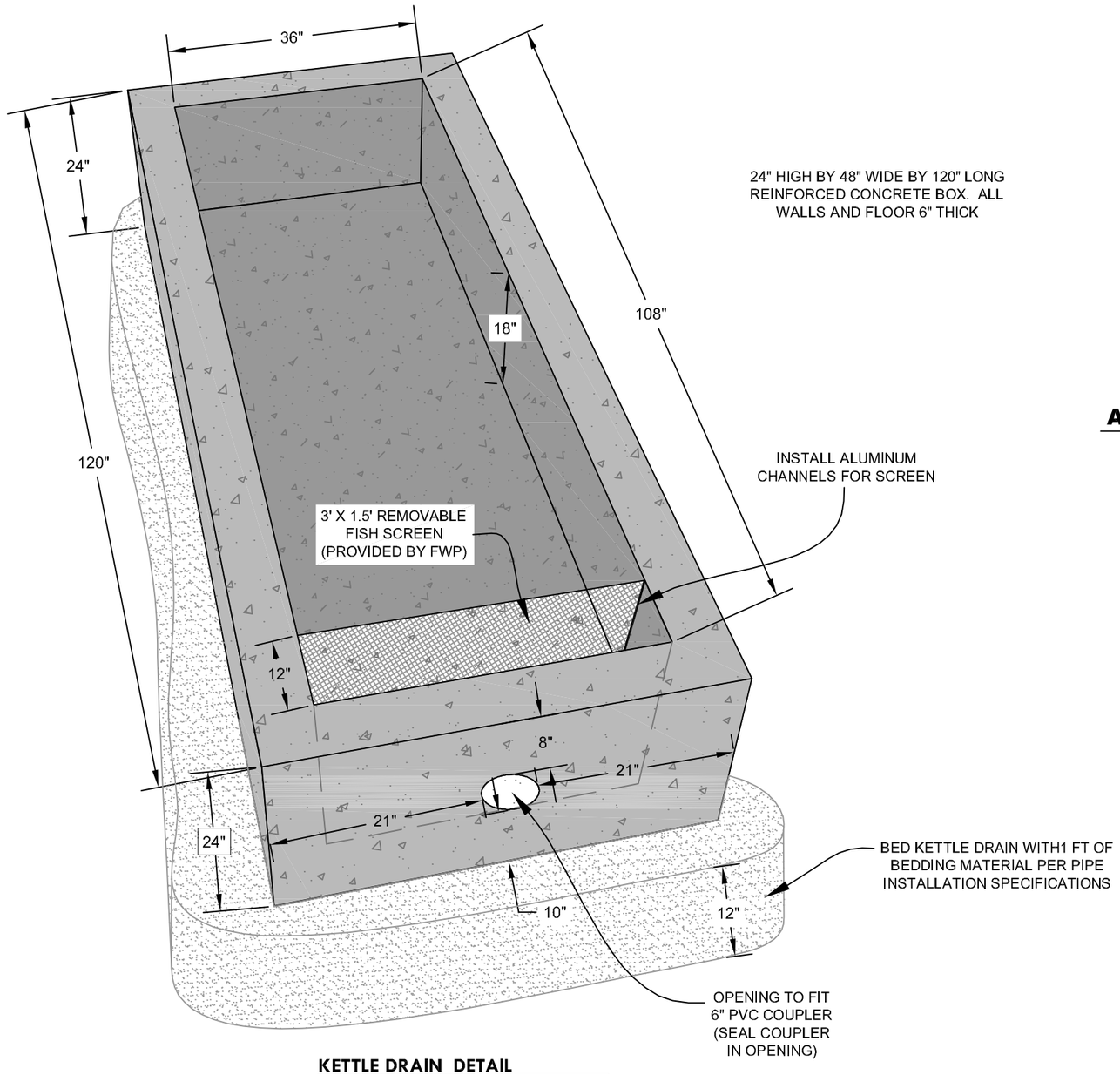
REARING PONDS 6A AND 6B CROSS SECTIONS

NO.	DATE	BY	DESCRIPTION	CHK
1	07-01-13	NW	95% Design	CN
2	11-12-14	NW	FINAL DESIGN	NW

PROJECT NUMBER
RDG-13-004

SHEET NUMBER
5.3



24" HIGH BY 48" WIDE BY 120" LONG
REINFORCED CONCRETE BOX. ALL
WALLS AND FLOOR 6" THICK

INSTALL ALUMINUM
CHANNELS FOR SCREEN

BED KETTLE DRAIN WITH1 FT OF
BEDDING MATERIAL PER PIPE
INSTALLATION SPECIFICATIONS

OPENING TO FIT
6" PVC COUPLER
(SEAL COUPLER
IN OPENING)

KETTLE DRAIN DETAIL

- not to scale -

REINFORCE ALL CONCRETE WITH $\frac{1}{2}$" REBAR 8" ON CENTER
PER TECHNICAL SPECIFICATIONS

APPLICABLE TECHNICAL SPECIFICATIONS

01300	SUBMITTALS
01600	PROTECTION OF MATERIALS
03100	CONCRETE FORMWORK
03210	REINFORCING STEEL
03300	CAST IN PLACE CONCRETE
04100	PIPE INSTALLATION
04200	PIPE MATERIALS AND FITTINGS
04300	METAL FABRICATION
05001	CHANNEL AND FLOODPLAIN FILL

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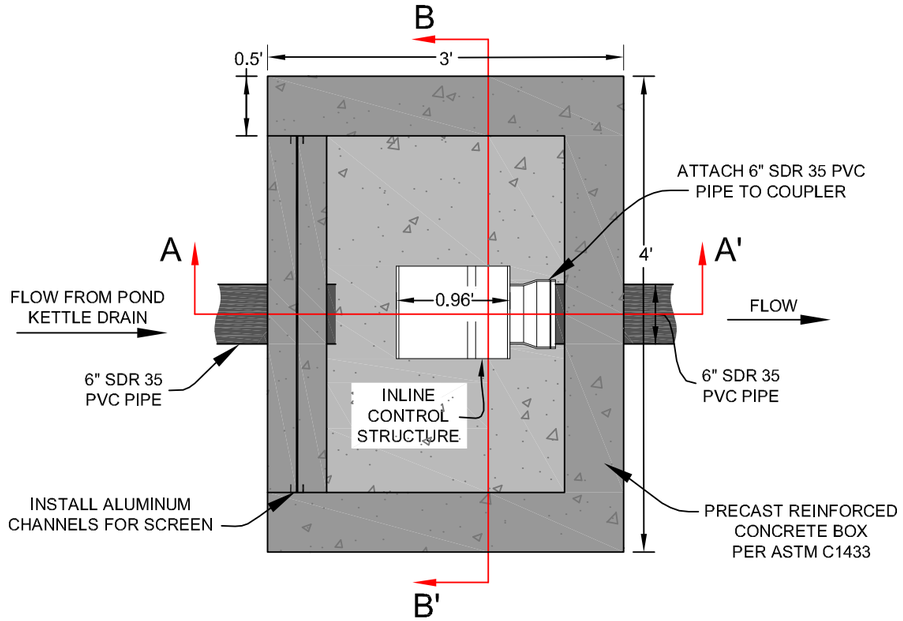
KETTLE DRAIN DETAIL

NO.	DATE	BY	DESCRIPTION	CHK
1	7-01-13	NW	95% Design	MD
2	11-12-14	NW	FINAL DESIGN	MD
3	01-06-15	NW	REVISION	MD

PROJECT NUMBER
RDG-13-004

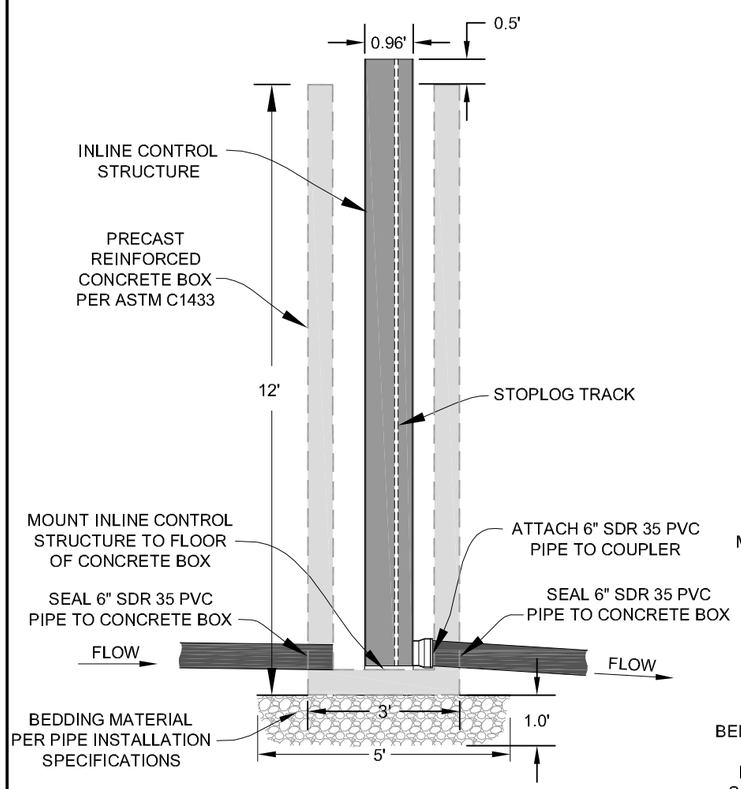
SHEET NUMBER
5.4



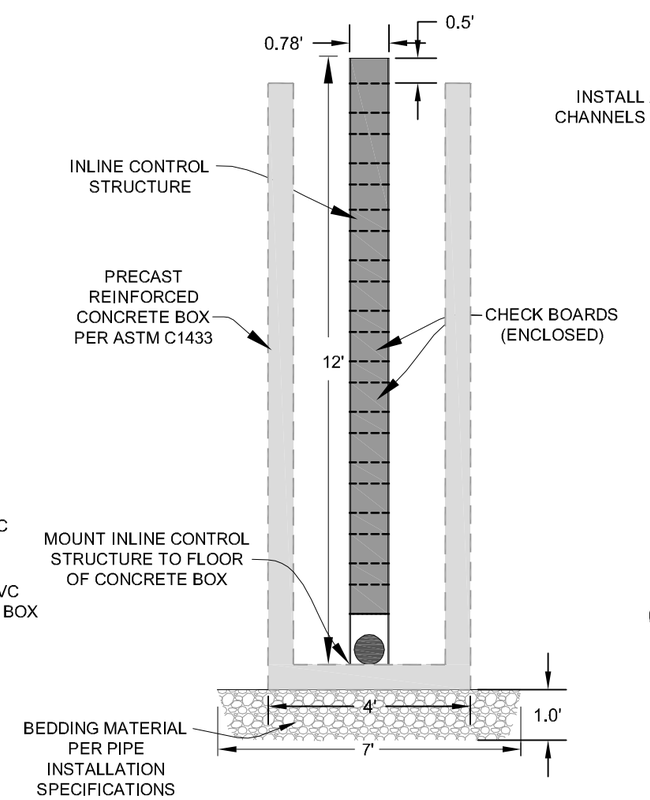
PLAN VIEW
NTS

APPLICABLE TECHNICAL SPECIFICATIONS

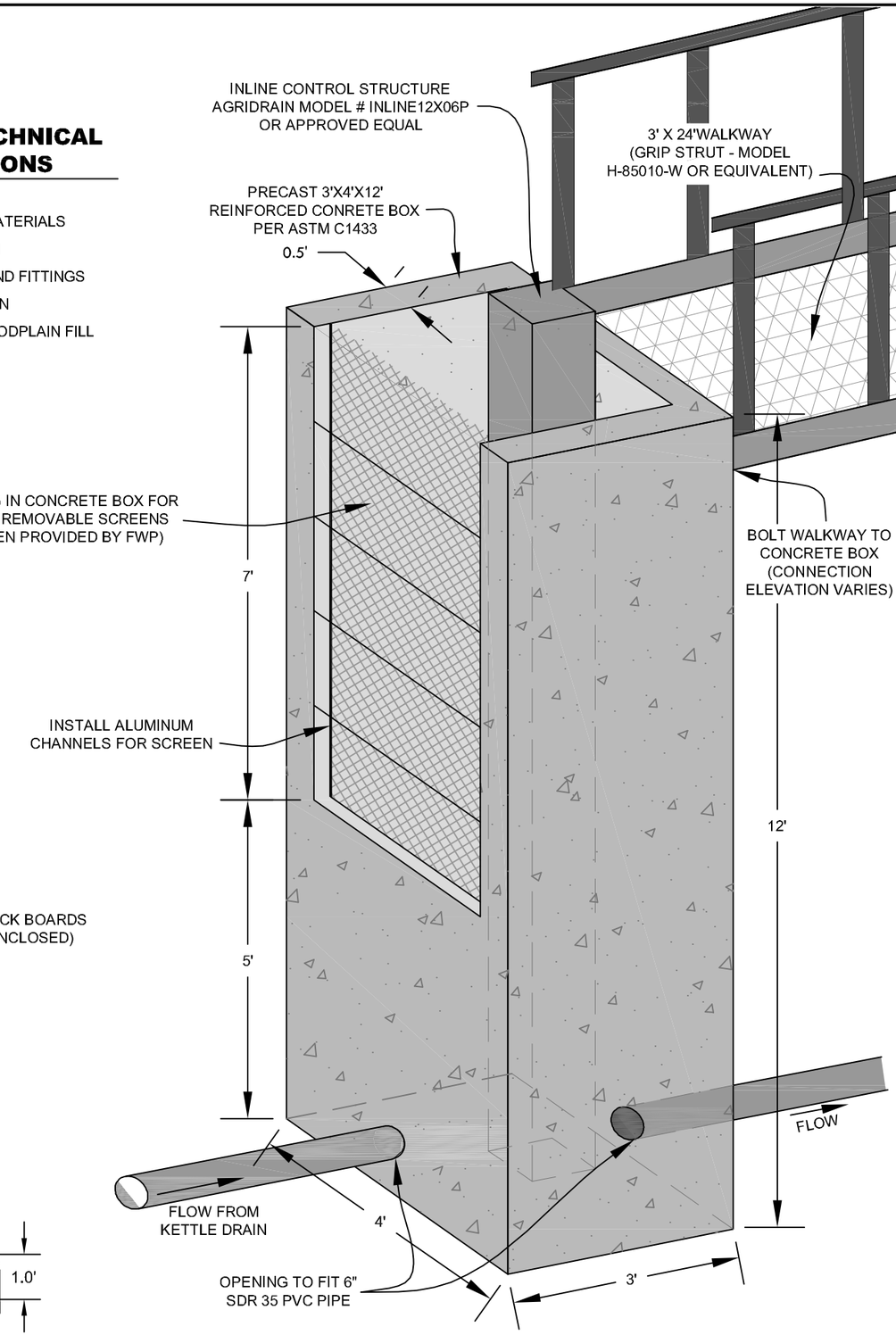
01300	SUBMITTALS
01600	PROTECTION OF MATERIALS
04100	PIPE INSTALLATION
04200	PIPE MATERIALS AND FITTINGS
04300	METAL FABRICATION
05001	CHANNEL AND FLOODPLAIN FILL



AGRI-DRAIN
SECTION A - A'
0' 1.5' 3'



AGRI-DRAIN
SECTION B - B'
0' 1.5' 3'



WATER CONTROL STRUCTURE
0' 1' 2'

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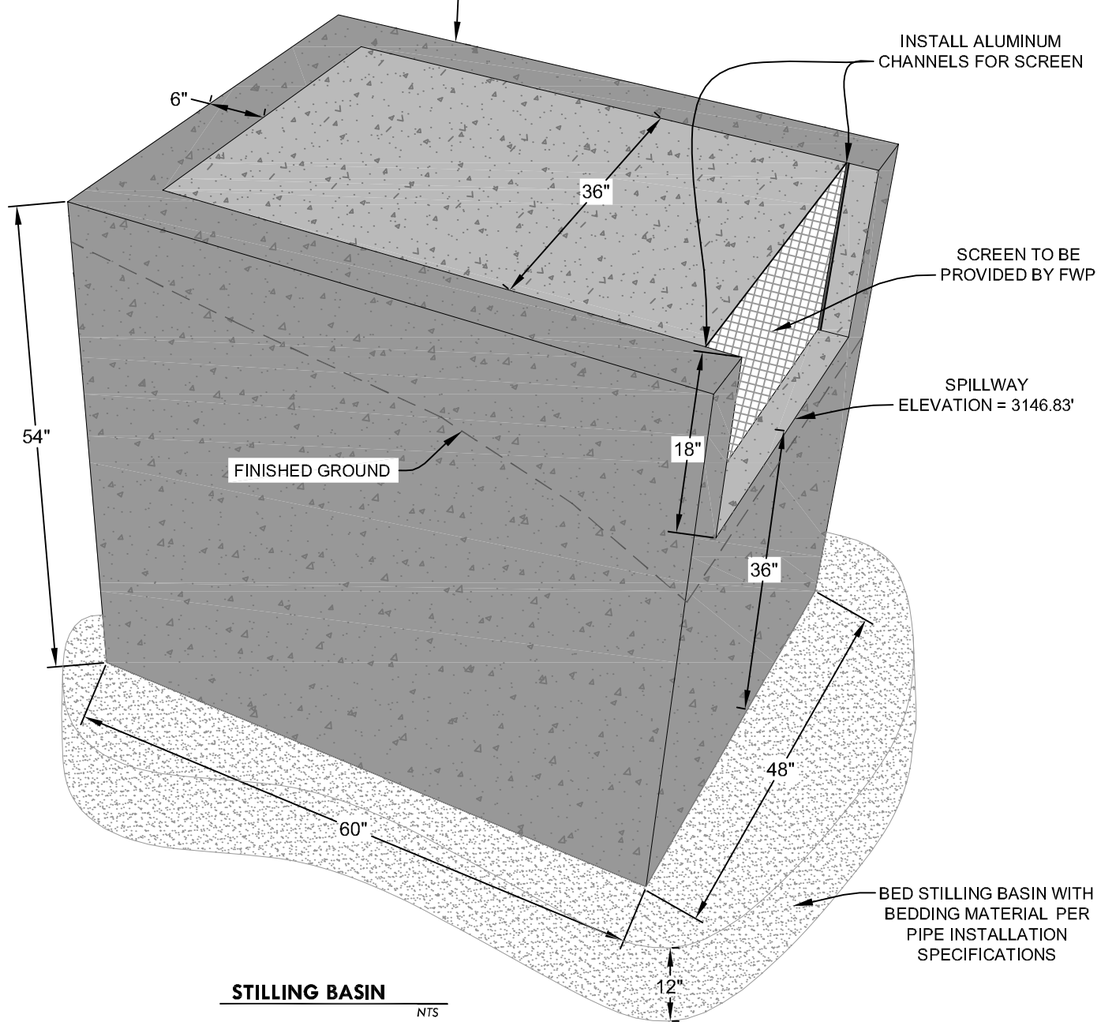
WATER CONTROL STRUCTURE DETAILS

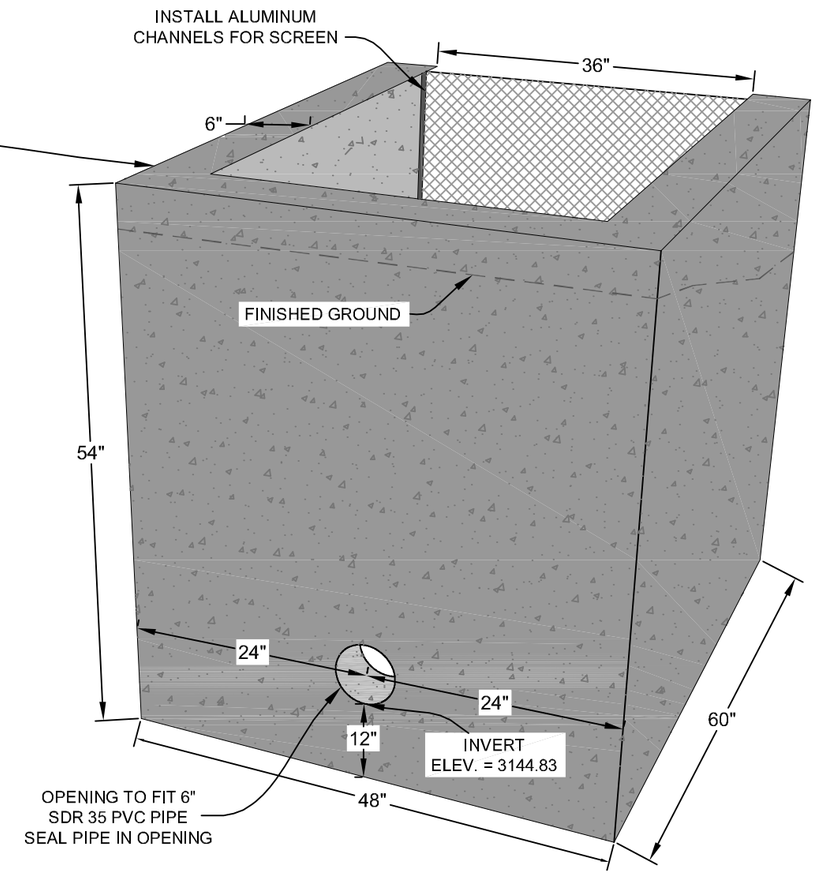
NO.	DATE	BY	DESCRIPTION	CHK
1	7-01-13	NW	95% Design	MD
2	11-12-14	NW	FINAL DESIGN	MD
3	01-06-15	NW	REVISION	MD

PROJECT NUMBER
RDG-13-004

SHEET NUMBER
5.5



STILLING BASIN
NTS



STILLING BASIN
NTS

*REINFORCE ALL CONCRETE WITH 1/2-INCH REBAR
8-INCHES ON CENTER PER TECHNICAL SPECIFICATIONS*

APPLICABLE TECHNICAL SPECIFICATIONS

01300	SUBMITTALS
01600	PROTECTION OF MATERIALS
03100	CONCRETE FORMWORK
03210	REINFORCING STEEL
03300	CAST IN PLACE CONCRETE
04100	PIPE INSTALLATION
04200	PIPE MATERIALS AND FITTINGS
04300	METAL FABRICATION
05001	CHANNEL AND FLOODPLAIN FILL

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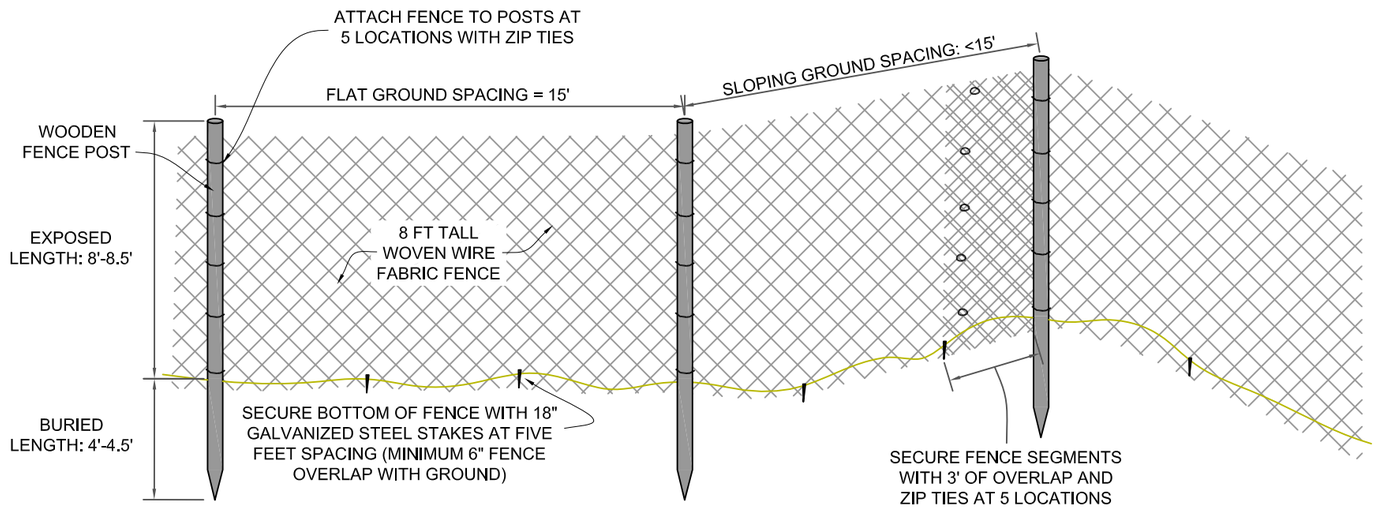
STILLING BASIN AND FISH BARRIER DETAIL

NO.	DATE	BY	DESCRIPTION	CHK
1	7-01-13	NW	95% Design	MD
2	11-12-14	NW	FINAL DESIGN	MD
3	01-06-15	NW	REVISION	MD

PROJECT NUMBER
RDG-13-004

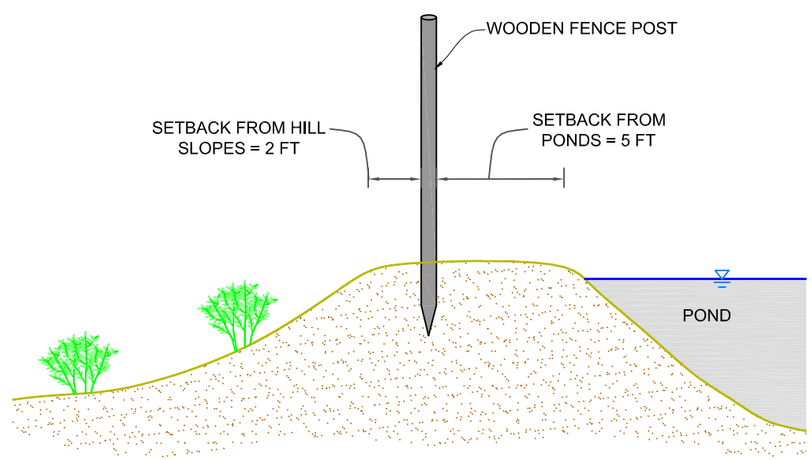
SHEET NUMBER
5.6



FENCE
PROFILE VIEW
0' 2.5' 5'

APPLICABLE TECHNICAL SPECIFICATIONS

02920 FENCE



FENCE
PROFILE VIEW
0' 2.5' 5'

NOTE: FINAL LOCATION OF FENCE AND GATE ACCESS POINTS TO BE DETERMINED IN THE FIELD BY CONTRACTING OFFICERS REPRESENTATIVE

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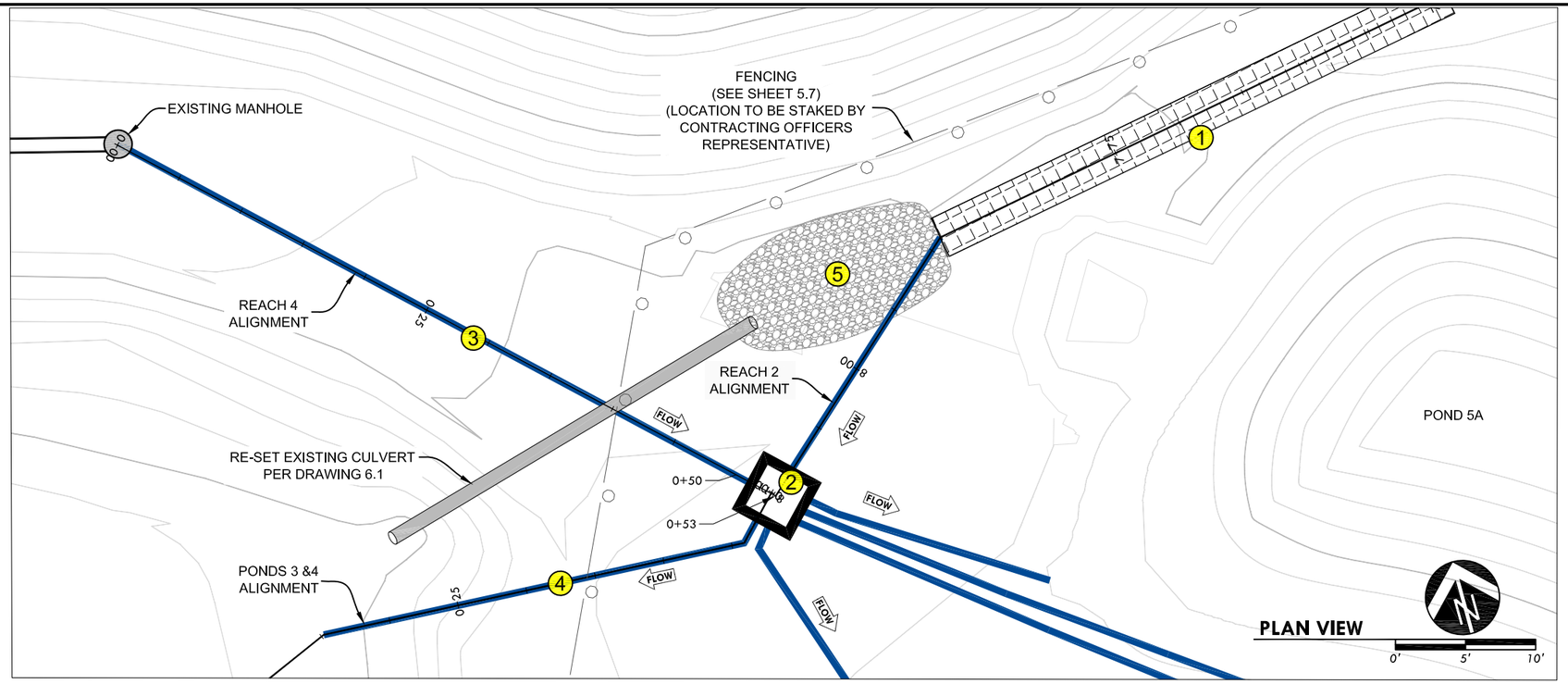
FENCING DETAIL

NO.	DATE	BY	DESCRIPTION	CHK
1	7-01-13	NW	95% Design	MD
2	11-12-14	NW	FINAL DESIGN	MD

PROJECT NUMBER
RDG-13-004

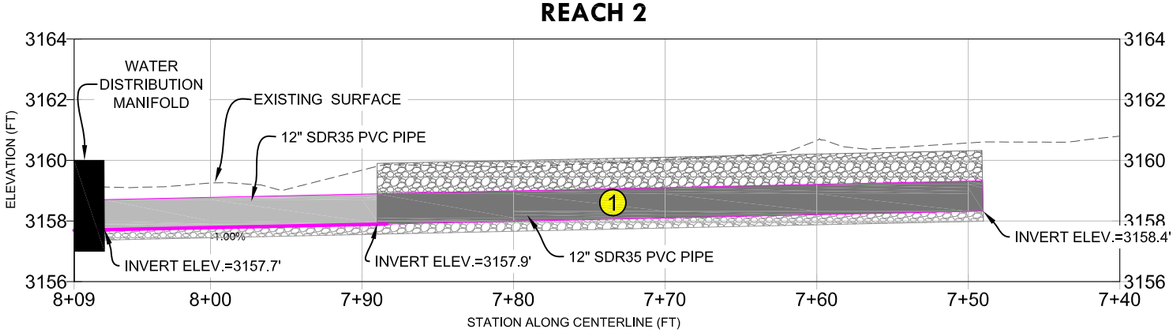
SHEET NUMBER
5.7

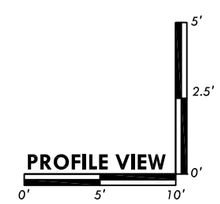


CONSTRUCTION NOTES

1. INSTALL INFILTRATION GALLERY PER DRAWING 6.1
2. INSTALL WATER DISTRIBUTION MANIFOLD PER DRAWING 6.2
3. INSTALL PIPING TO CONNECT WITH EXISTING MANHOLE IN REACH 4
4. INSTALL PIPING TO CONNECT TO POND 3 AND 4 WETLAND
5. GRADE OVERFLOW CHANNEL TO EXISTING CULVERT PER DRAWING 6.1

REACH 2

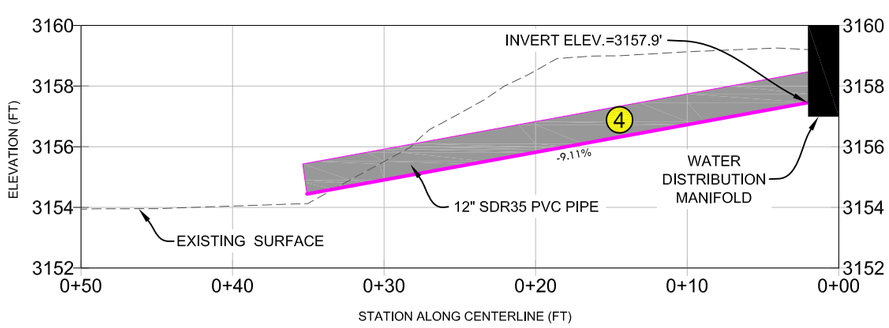




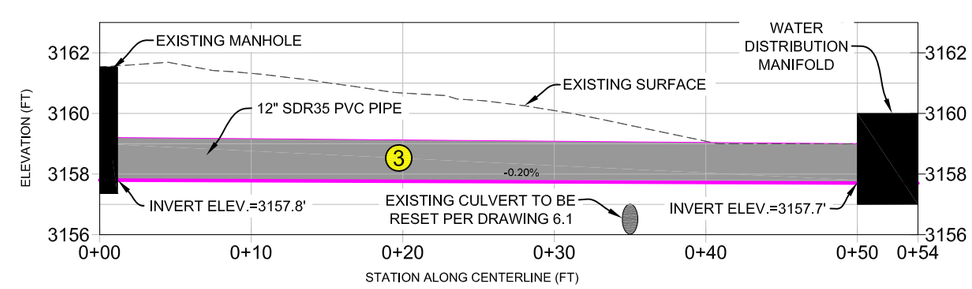
APPLICABLE TECHNICAL SPECIFICATIONS

01300 SUBMITTALS
01400 CONSTRUCTION STAKING
01560 ENVIRONMENTAL CONTROLS
01600 PROTECTION OF MATERIALS
02140 DEWATERING AND WORK AREA ISOLATION
02160 SITE PREPARATION
02200 EARTHWORK
04100 PIPE INSTALLATION
04200 PIPE MATERIALS AND FITTINGS
05001 CHANNEL AND FLOODPLAIN FILL

POND 3 & 4



REACH 4



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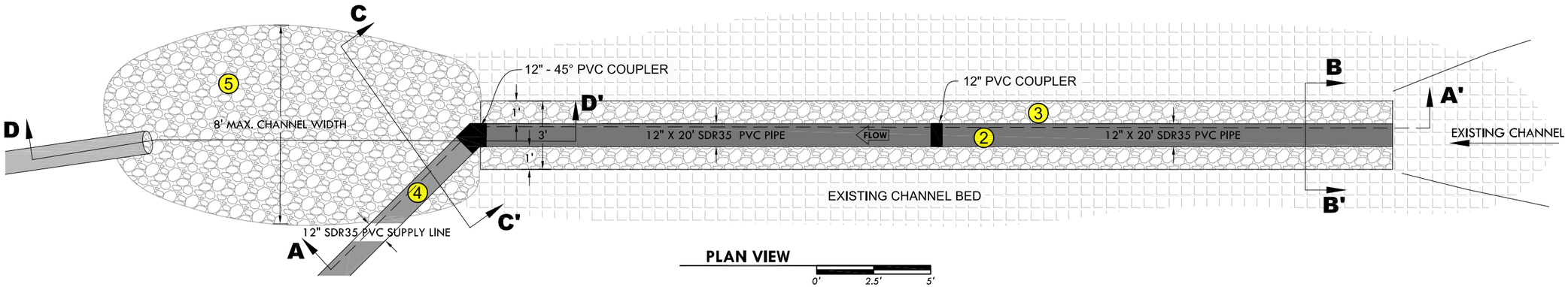
INFILTRATION GALLERY AND WATER DISTRIBUTION MANIFOLD PLAN AND PROFILE

NO.	DATE	BY	DESCRIPTION	CHK
1	4-15-13	NW	Preliminary Design - 65%	CN
2	07-01-13	NW	95% Design	CN
3	11-12-14	NW	FINAL DESIGN	MD

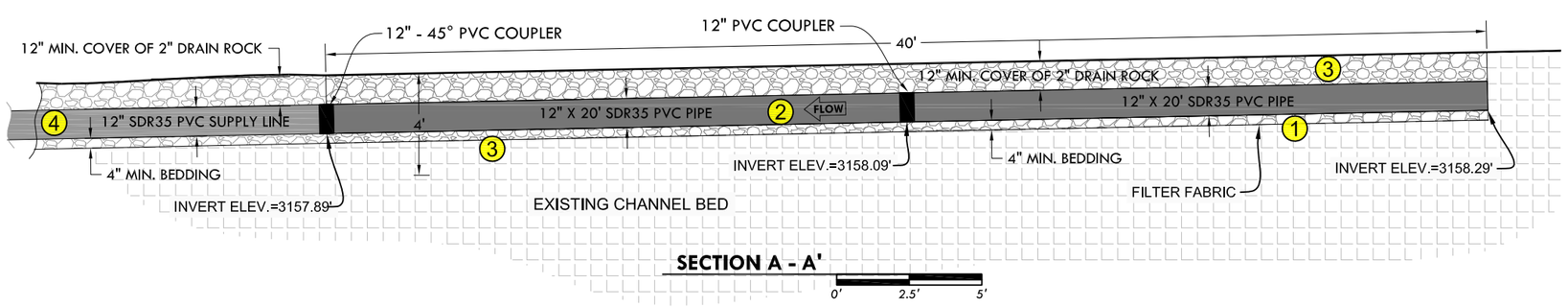
PROJECT NUMBER
RDG-13-004

SHEET NUMBER
6.0



PLAN VIEW

0' 2.5' 5'

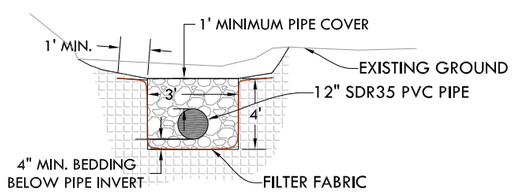


SECTION A - A'

0' 2.5' 5'

CONSTRUCTION NOTES

1. EXCAVATE INFILTRATION GALLERY FOOTPRINT, INSTALL FILTER FABRIC AND PREPARE PIPE BEDDING.
2. CUT 400 ONE-HALF INCH BY FOUR INCH PERFORATIONS IN PIPE. INSTALL 40 LINEAR FEET OF SDR35 PVC PIPE.
3. BACKFILL PERFORATED PIPE WITH 2-INCH DRAIN ROCK.
4. INSTALL 20 LINEAR FEET OF SDR35 PVC PIPE. CONNECT PIPE TO PERFORATED PIPE AND WATER DISTRIBUTION MANIFOLD.
5. GRADE OVERFLOW CHANNEL TO OVERFLOW PIPE

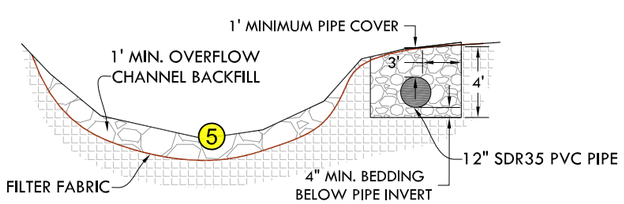


SECTION B - B'

0' 2.5' 5'

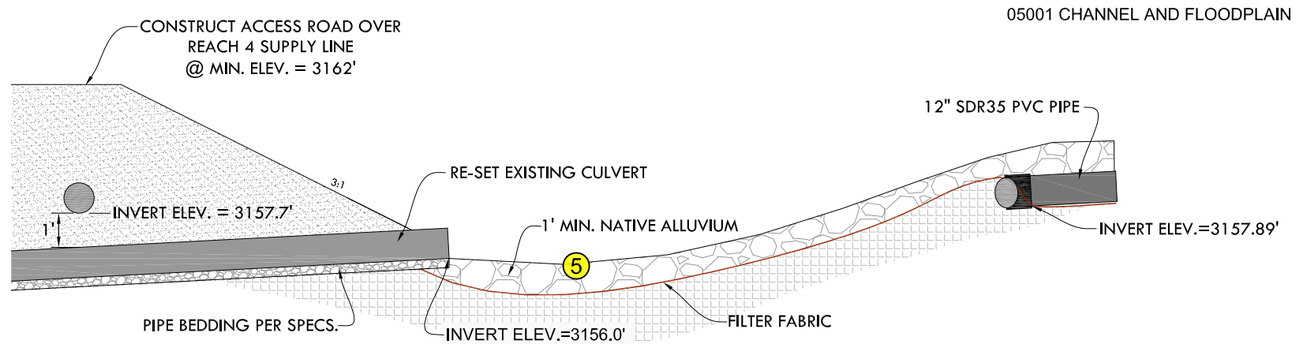
APPLICABLE TECHNICAL SPECIFICATIONS

01300 SUBMITTALS
01400 CONSTRUCTION STAKING
01560 ENVIRONMENTAL CONTROLS
01600 PROTECTION OF MATERIALS
02140 DEWATERING AND WORK AREA ISOLATION
02160 SITE PREPARATION
02200 EARTHWORK
04100 PIPE INSTALLATION
04200 PIPE MATERIALS AND FITTINGS
05001 CHANNEL AND FLOODPLAIN FILL



SECTION C - C'

0' 2.5' 5'



SECTION D - D'

0' 2.5' 5'

RIVER DESIGN GROUP, INC.
236 Wisconsin Avenue
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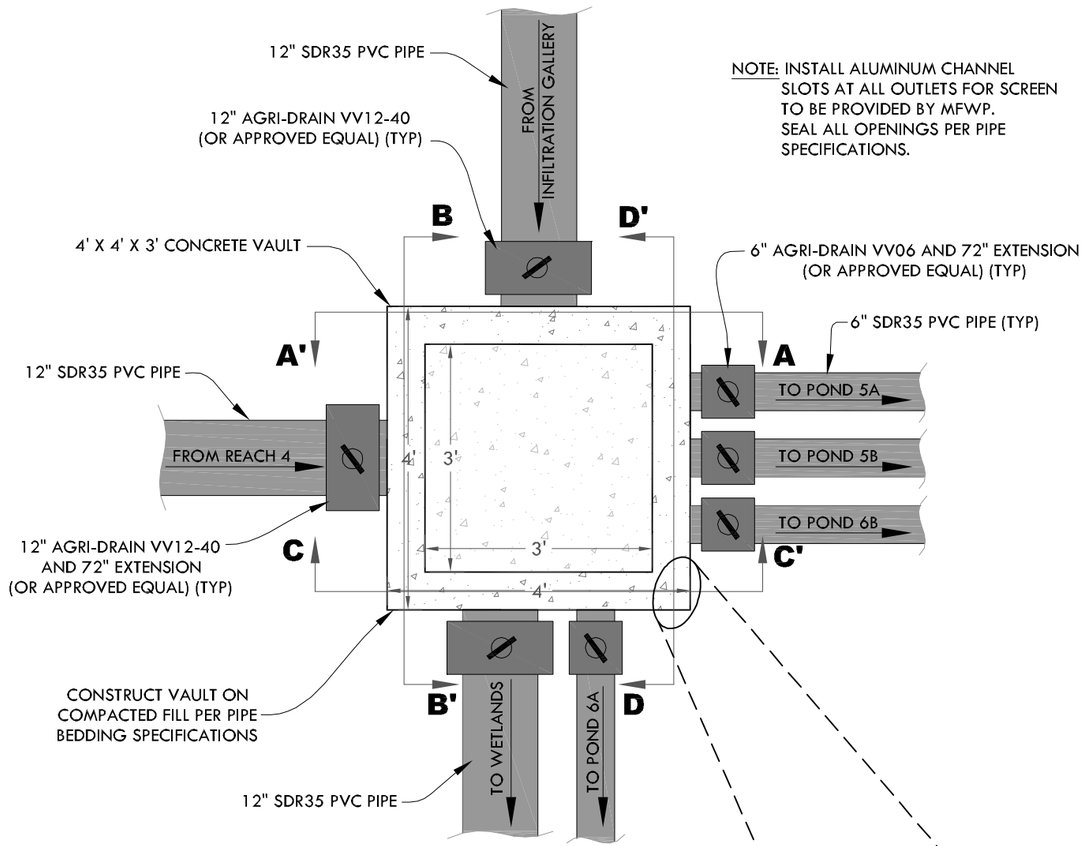
INFILTRATION GALLERY DETAILS

NO.	DATE	BY	DESCRIPTION	CHK
1	07-01-13	NW	95% Design	CN
2	11-12-14	NW	FINAL DESIGN	MD

PROJECT NUMBER
RDG-13-004

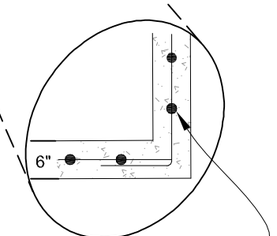
SHEET NUMBER
6.1



NOTE: INSTALL ALUMINUM CHANNEL SLOTS AT ALL OUTLETS FOR SCREEN TO BE PROVIDED BY MFWP. SEAL ALL OPENINGS PER PIPE SPECIFICATIONS.

PLAN VIEW

0' 1' 2'



REINFORCE ALL CONCRETE WITH $\frac{1}{2}$" REBAR 8" ON CENTER PER TECHNICAL SPECIFICATIONS

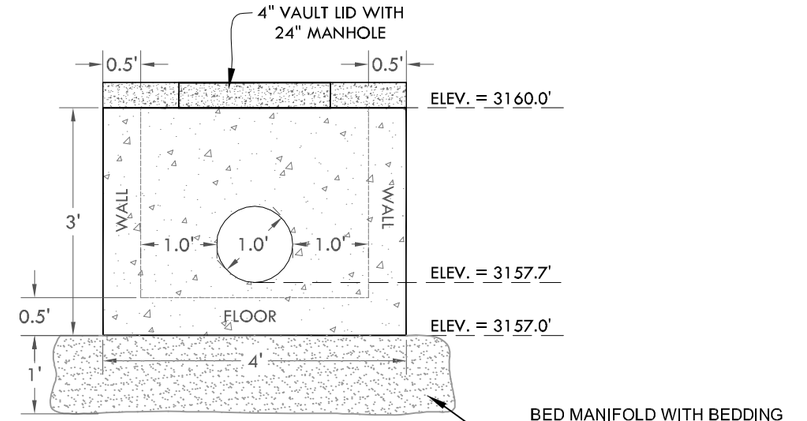
REBAR DETAIL

0' 1' 2'

APPLICABLE TECHNICAL SPECIFICATIONS

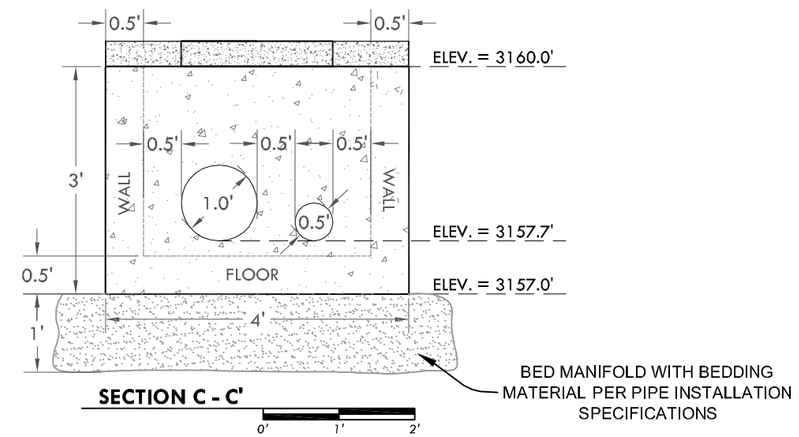
01300 SUBMITTALS
01600 PROTECTION OF MATERIALS
03100 CONCRETE FORMWORK
03210 REINFORCING STEEL
03300 CAST IN PLACE CONCRETE
03400 PRECAST CONCRETE
04100 PIPE INSTALLATION
04200 PIPE MATERIALS AND FITTINGS
04300 METAL FABRICATION
05001 CHANNEL AND FLOODPLAIN FILL

NOTE: FWP TO PROVIDE ALL FISH SCREENS



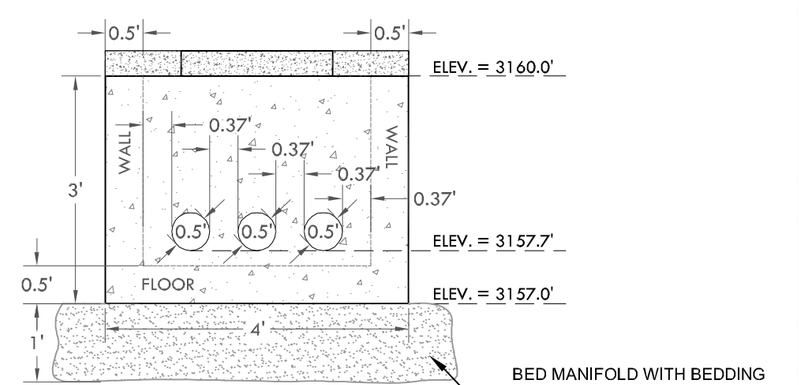
SECTIONS A - A' & B - B'

0' 1' 2'



SECTION C - C'

0' 1' 2'



SECTION D - D'

0' 1' 2'

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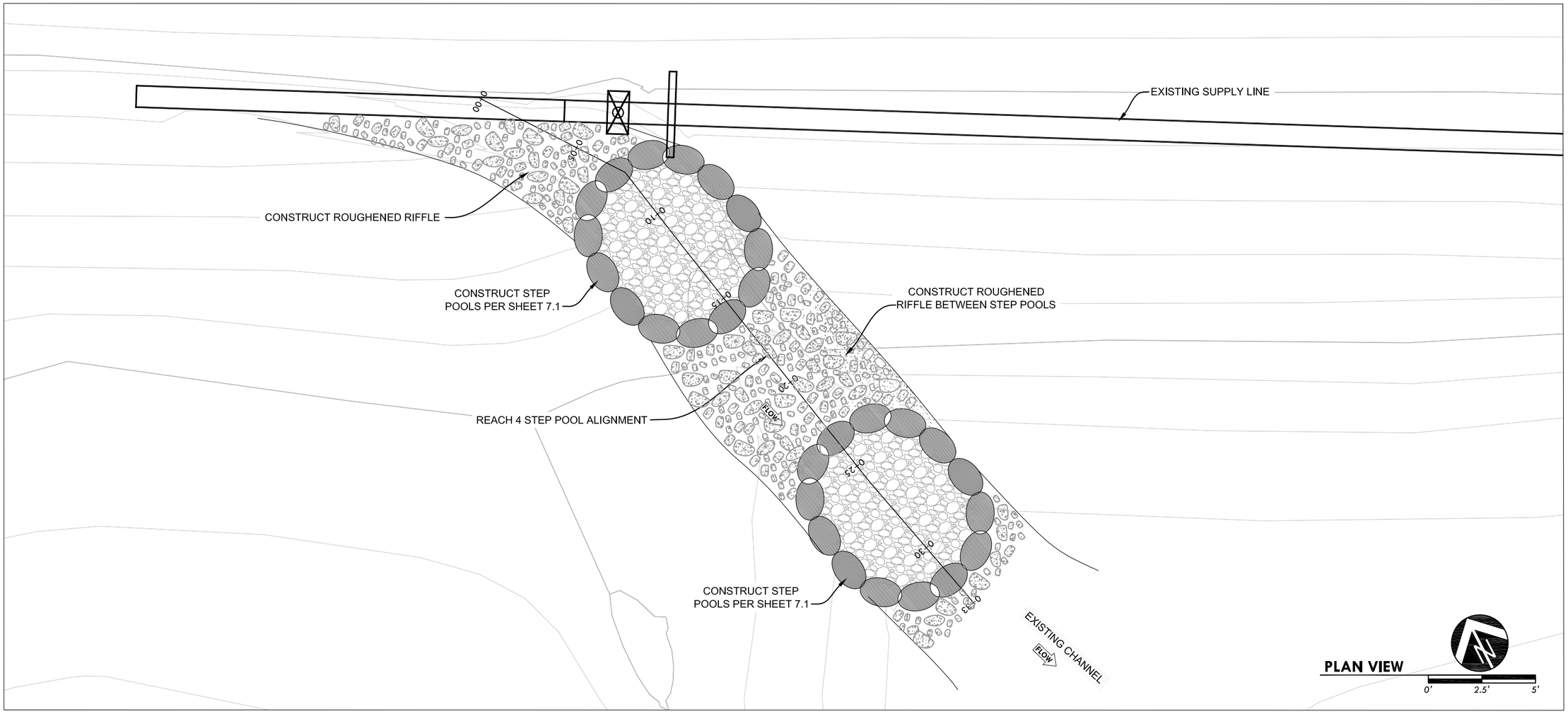
WATER DISTRIBUTION MANIFOLD DETAILS

NO.	DATE	BY	DESCRIPTION	CHK
1	07-01-13	NW	95% Design	CN
2	11-12-14	NW	FINAL DESIGN	MD
3	1-07-15	NW	REVISION	MD

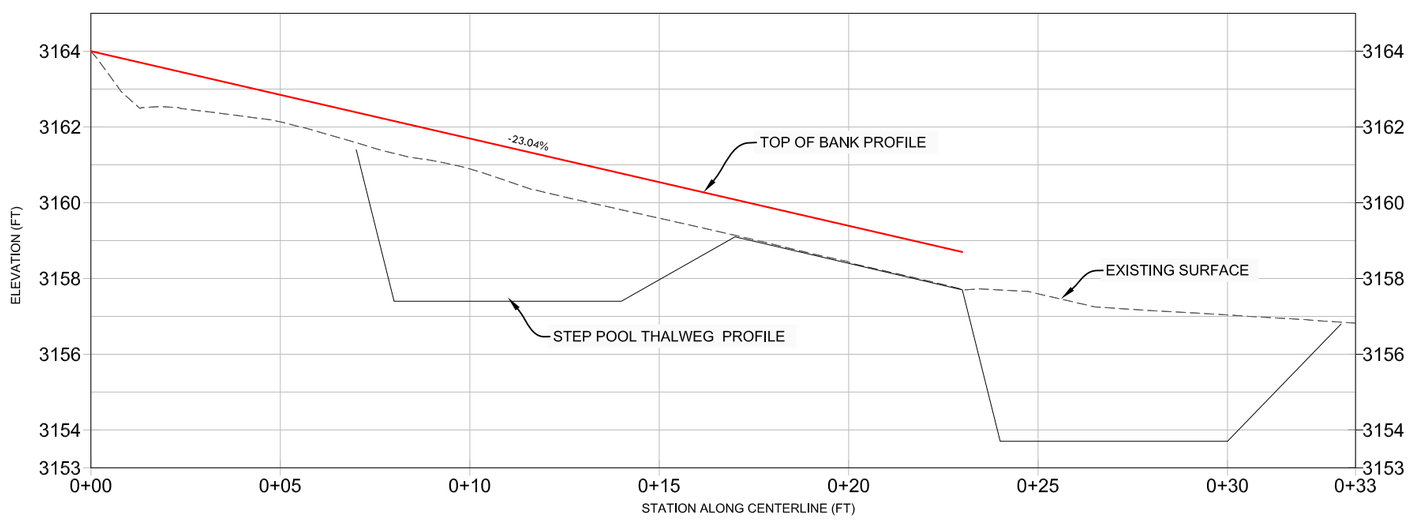
PROJECT NUMBER
RDG-13-004

SHEET NUMBER
6.2



REACH 4 INFLOW CHANNEL ELEVATIONS

STATION (FT)	TOP OF BANK (FT)	THALWEG (FT)
7	3162.4	3161.4
8	3162.2	3157.4
14	3160.8	3157.4
17	3160.1	3159.1
23	3158.7	3157.7
24	----	3153.7
30	----	3153.7
33	----	3156.8



PROFILE VIEW

0' 4' 4'

4' 2' 0'

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REACH 4 PLAN AND PROFILE

NO.	DATE	BY	DESCRIPTION	CHK
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3	11-12-14	NW	FINAL DESIGN	MD

PROJECT NUMBER
RDG-13-004

SHEET NUMBER
7.0