

APPENDIX D

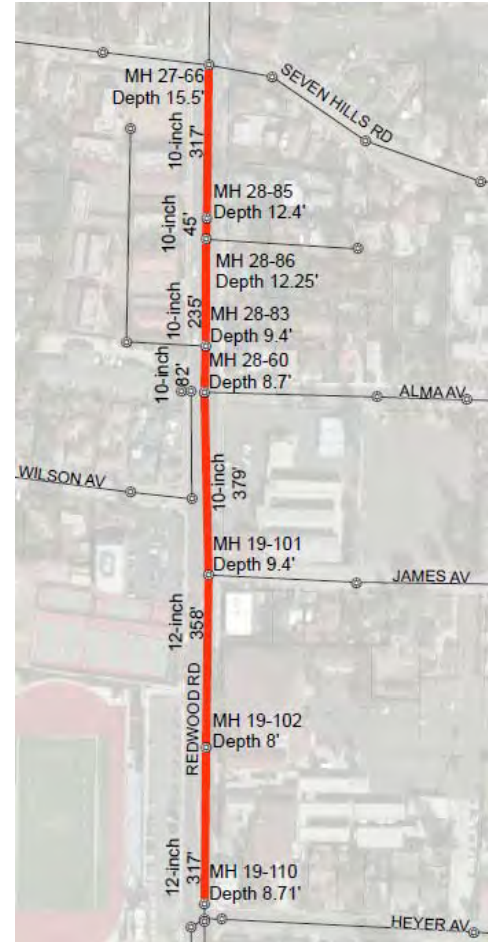
Capital Improvement Project Sheets

PROJECT: Redwood Road Trunk Sewer

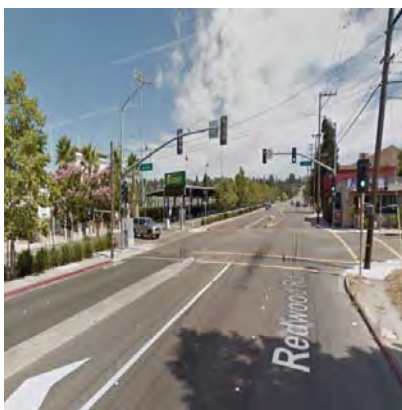
- Priority/Fiscal Year:** Priority A: FY 2016/17
- Risk Level:** High Risk
- Project Purpose:** Upsize gravity sewer to accommodate PWWF and relieve wet weather surcharging on Redwood Road and points upstream
- Project Location:** Redwood Road between Seven Hills Road and Heyer Avenue
- Existing Conditions:**
- 6-inch and 8-inch VCP
 - Existing capacity = 0.93 mgd
 - 2006 ADWF: 0.23 mgd
 - 2015 ADWF: 0.20 mgd
- Design PWWF:** 1.73 mgd (10-year, 24-hour design storm)
- Model Reference:** MH 27-66 to MH 19-110
- Recommendations:**
- Upsize 1,058 LF of sanitary sewer to 10-inch VCP by open-cut replacement
 - Upsize 675 LF of sanitary sewer to 12-inch VCP by open-cut replacement

Estimated Project Costs				
Item	Unit	\$/Unit	Quantity	Total
10-inch Remove & Replace	LF	\$270	1,058	\$286,000
12-inch Remove & Replace	LF	\$324	675	\$219,000
Project Subtotal				\$505,000
30% Contingency				\$152,000
Construction Cost Subtotal				\$657,000
Engineering, Legal, Admin., etc. @ 30%				\$198,000
Total Capital Cost				\$855,000

PROJECT LOCATION MAP



PROJECT PHOTO



Redwood Road at Heyer Avenue looking North

PROJECT TRIGGERS

EXISTING CAPACITY DEFICIENCY:

Pipe is currently undersized for PWWF conditions, and overflows at multiple locations during wet weather.



WASTEWATER COLLECTION SYSTEM MASTER PLAN UPDATE

REDWOOD ROAD TRUNK SEWER PROJECT SHEET



PROJECT: Marshall Street Trunk Sewer

Priority/Fiscal Year: Priority B: FY 2017/18

Risk Level: High Risk

Project Purpose: Upsize gravity sewer to accommodate PWWF and relieve wet weather surcharging on Marshall Street and points upstream

Project Location: Marshall Street between Normandy Court and Greenacre Road

- Existing Conditions:**
- 10-inch VCP
 - Existing capacity = 1.05 mgd
 - 2006 ADWF: 0.19 mgd
 - 2015 ADWF: 0.17 mgd

Model Reference: MH 30-18 to MH 30-40

Design PWWF: 1.67 mgd (10-year, 24-hour design storm)

- Recommendations:**
- Upsize 1328 LF of sanitary sewer to 12-inch VCP by open-cut replacement

Estimated Project Costs				
Item	Unit	\$/Unit	Quantity	Total
12-inch Remove & Replace	LF	324	1,328 LF	\$430,000
Project Subtotal				\$430,000
30% Contingency				\$129,000
Construction Cost Subtotal				\$559,000
Engineering, Legal, Admin., etc. @ 30%				\$168,000
Total Capital Cost				\$727,000

PROJECT LOCATION MAP



- Manhole
- CIP Project
- Gravity Main
- Force Main

PROJECT PHOTOS



Marshall Street at Greenacre Road looking North

PROJECT TRIGGERS

EXISTING CAPACITY DEFICIENCY:

Pipe is currently undersized for existing PWWF conditions, and surcharges more than two feet at multiple locations during wet weather.



WASTEWATER COLLECTION SYSTEM MASTER PLAN UPDATE

MARSHAL STREET TRUNK SEWER PROJECT SHEET



PROJECT: Sandy Road Trunk Sewer

- Priority/Fiscal Year:** Priority B: FY 2017/18
- Risk Level:** Medium Risk
- Project Purpose:** Upsize gravity sewer to accommodate PWWF and relieve wet weather surcharging on Sandy Road and points upstream
- Project Location:** Sandy Road south of Seven Hills Road
- Existing Conditions:**
- 8-inch VCP
 - Existing capacity = 0.88 mgd
 - 2006 ADWF: 0.14 mgd
 - 2015 ADWF: 0.17 mgd
- Model Reference:** MH 28-9 to MH 28-94
- Ultimate PWWF:** 1.50 mgd (10-year, 24-hour design storm)
- Recommendations:**
- Upsize 848 LF of sanitary sewer to 10-inch VCP by open-cut replacement

Estimated Project Costs				
Item	Unit	\$/Unit	Quantity	Total
10-inch Remove & Replace	LF	180	848 LF	\$153,000
Project Subtotal				\$153,000
30% Contingency				\$46,000
Construction Cost Subtotal				\$199,000
Engineering, Legal, Admin., etc. @ 30%				\$60,000
Total Capital Cost				\$259,000

PROJECT LOCATION MAP



PROJECT PHOTO



Sandy Road at Seven Hills Road looking South

PROJECT TRIGGERS

EXISTING CAPACITY DEFICIENCY:

Pipe is currently undersized for existing PWWF conditions, and surcharges more than 2 feet at multiple locations during wet weather.



WASTEWATER COLLECTION SYSTEM MASTER PLAN UPDATE

SANDY ROAD TRUNK SEWER PROJECT SHEET



PROJECT: Aspen and Pine Trunk Sewer

- Priority/Fiscal Year:** Priority B: FY 2017/18
- Risk Level:** Medium Risk
- Project Purpose:** Upsize gravity sewer to accommodate PWWF and relieve wet weather surcharging
- Project Location:** Aspen Avenue and Pine Street between Castro Valley Boulevard and Elm Street
- Existing Conditions:**
- 10-inch, 12-inch and 15-inch VCP
 - Existing capacity = 1.17 mgd
 - 2006 ADWF: 0.79 mgd
 - 2015 ADWF: 0.70 mgd
- Design PWWF:** 2.51 mgd (10-year, 24-hour design storm)
- Model Reference:** MH 30-46 to MH 31-4
- Recommendations:**
- Upsize 809 LF of sanitary sewer to 18-inch VCP by open-cut replacement
 - Upsize 626 LF of sanitary sewer to 21-inch VCP by open-cut replacement

Estimated Project Costs				
Item	Unit	\$/Unit	Quantity	Total
18-inch Remove & Replace	LF	\$486	809 LF	\$393,000
21-inch Remove & Replace	LF	\$567	626 LF	\$355,000
Project Subtotal				\$748,000
30% Contingency				\$224,000
Construction Cost Subtotal				\$972,000
Engineering, Legal, Admin., etc. @ 30%				\$292,000
Total Capital Cost				\$1,264,000

PROJECT PHOTO



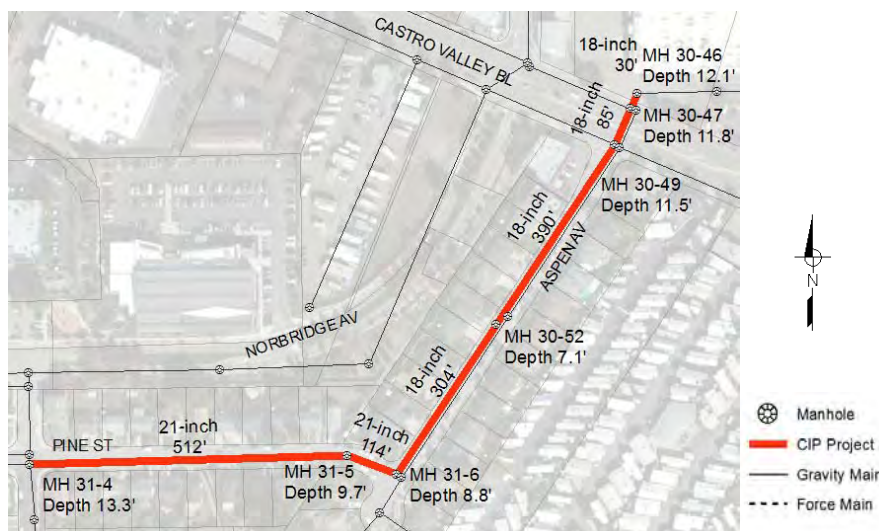
Intersection of Aspen Avenue and Pine Street looking West along Pine Street

PROJECT TRIGGERS

EXISTING CAPACITY DEFICIENCY:

Trunk sewers are currently undersized for existing PWWF conditions and surcharges more than two feet at multiple locations during wet weather.

PROJECT LOCATION MAP



WASTEWATER COLLECTION SYSTEM MASTER PLAN UPDATE

ASPEN AND PINE TRUNK SEWER PROJECT SHEET



PROJECT: South of I-580 Relief Sewer

Priority/Fiscal Year: Priority C: FY 2018/19

Risk Level: High Risk

Project Purpose: New relief sewer to relieve surcharging in Orange Avenue and several locations along the proposed parallel relief sewer alignment

Project Location: South of Interstate-580 from Redwood Road to North Third Street

Existing Conditions: Inadequate capacity in multiple trunk sewers

Design PWWF: 4.17 mgd (10-year, 24-hour design storm)

Model Reference: MH 30-18 to MH 30-40

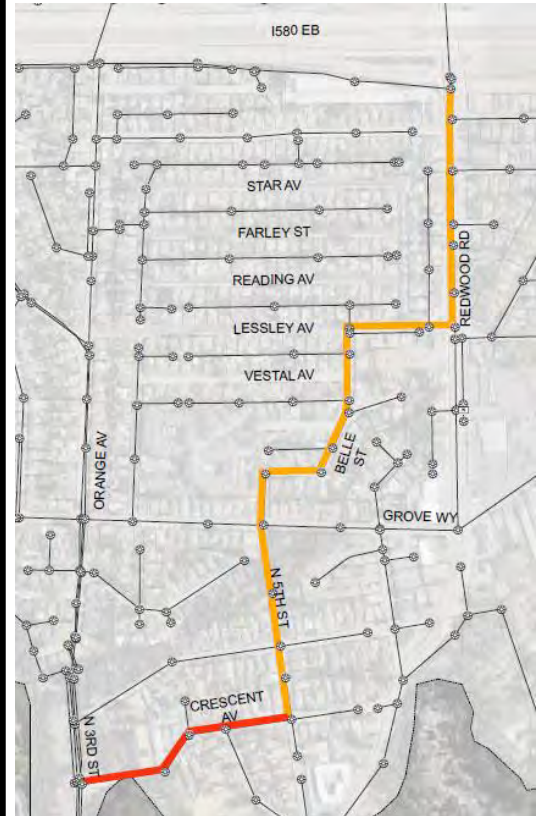
Recommendations:

- Construct 3,874 LF of 21-inch VCP and 1,110 LF of 24-inch VCP by open-cut

Estimated Project Costs

Item	Unit	\$/Unit	Quantity	Total
21-inch New Pipeline	LF	\$567	3,874	\$2,197,000
24-inch New Pipeline	LF	\$648	1,110	\$719,000
Creek Crossing Cost	LF	\$600	600	\$360,000
Project Subtotal				\$3,276,000
30% Contingency				\$983,000
Construction Cost Subtotal				\$4,259,000
Engineering, Legal, Admin., etc. @ 30%				\$198,000
Total Capital Cost				\$4,457,000

PROJECT LOCATION MAP



- Manhole
- Gravity Main
- Force Main
- CIP Project**
- 21- inch
- 24- inch

PROJECT PHOTO



Redwood Road looking south from the I-580 undercrossing

PROJECT TRIGGERS

EXISTING CAPACITY DEFICIENCY:

Existing mains are currently undersized for PWWF conditions, and surcharge at multiple locations during wet weather



WASTEWATER COLLECTION SYSTEM MASTER PLAN UPDATE

SOUTH OF I-580 RELIEF SEWER PROJECT SHEET

WEST YOST



ASSOCIATES

APPENDIX E

CIP Project Hydraulic Profiles

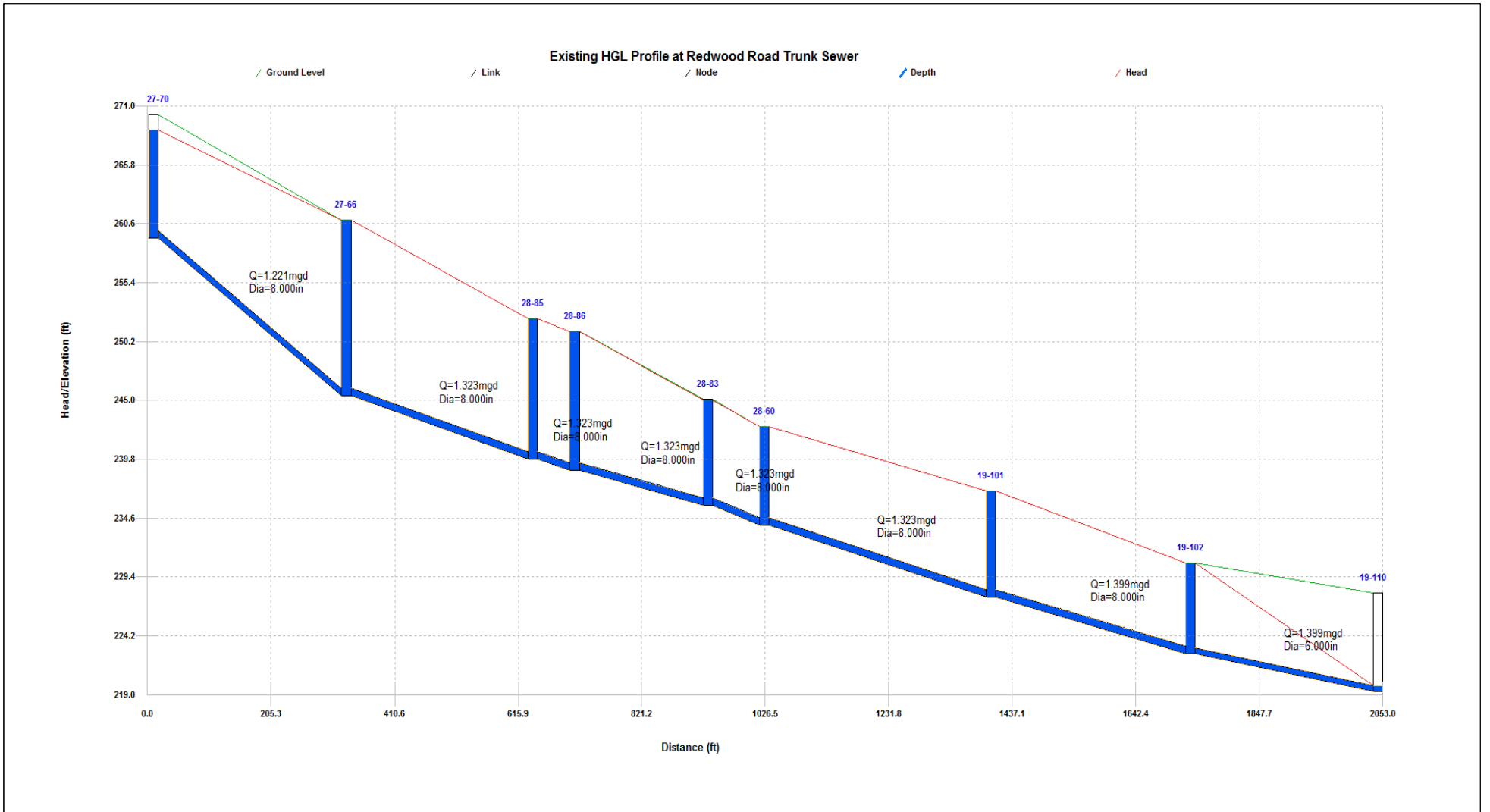


Figure E-1
Existing HGL Profile at Redwood Road Trunk Sewer
 Castro Valley Sanitary District
 WWCS Master Plan Update

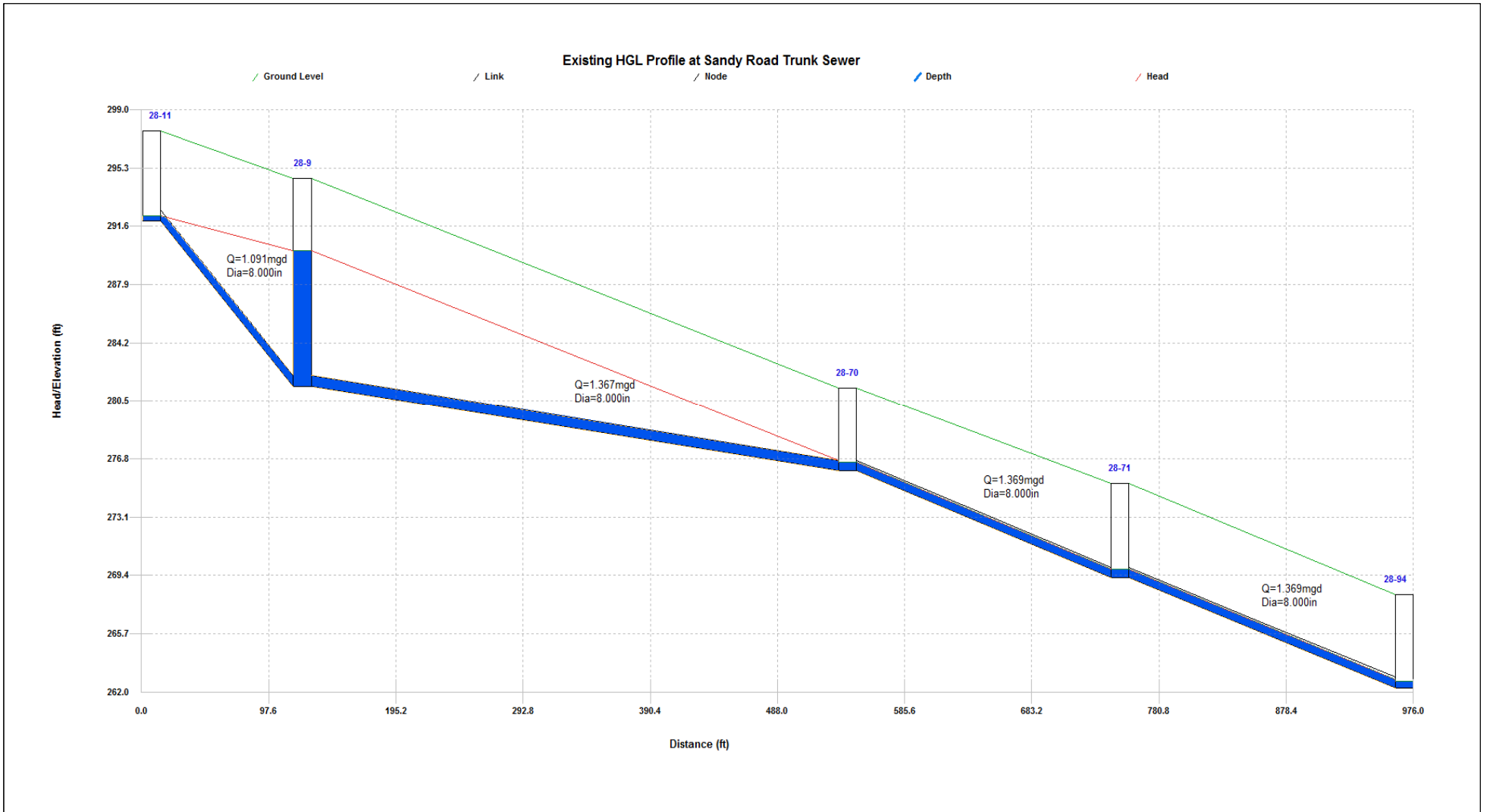


Figure E-2
Existing HGL Profile at
Sandy Road Trunk Sewer
 Castro Valley Sanitary District
 WWCS Master Plan Update

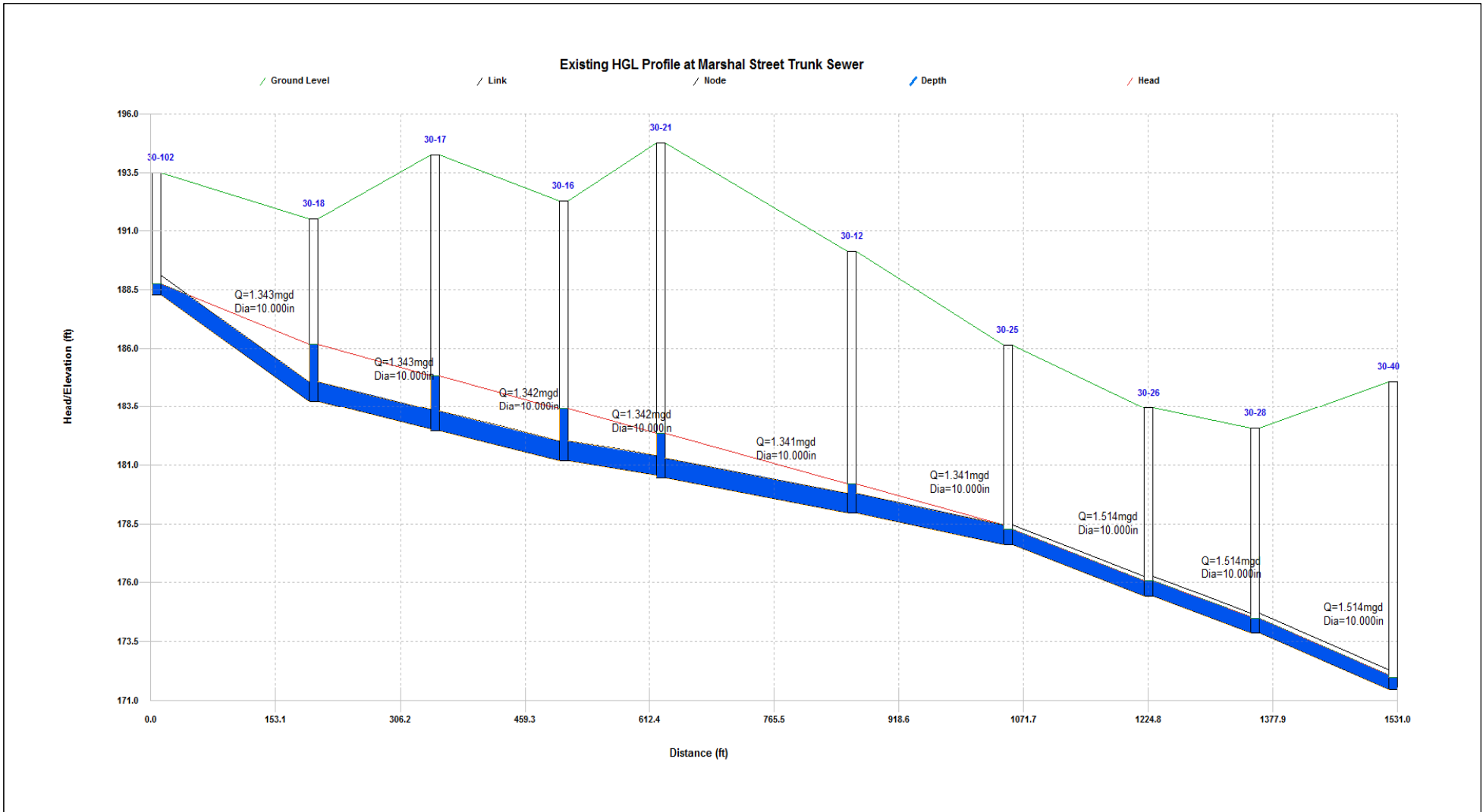


Figure E-3
Existing HGL Profile at Marshal Street Trunk Sewer
 Castro Valley Sanitary District
 WWCS Master Plan Update

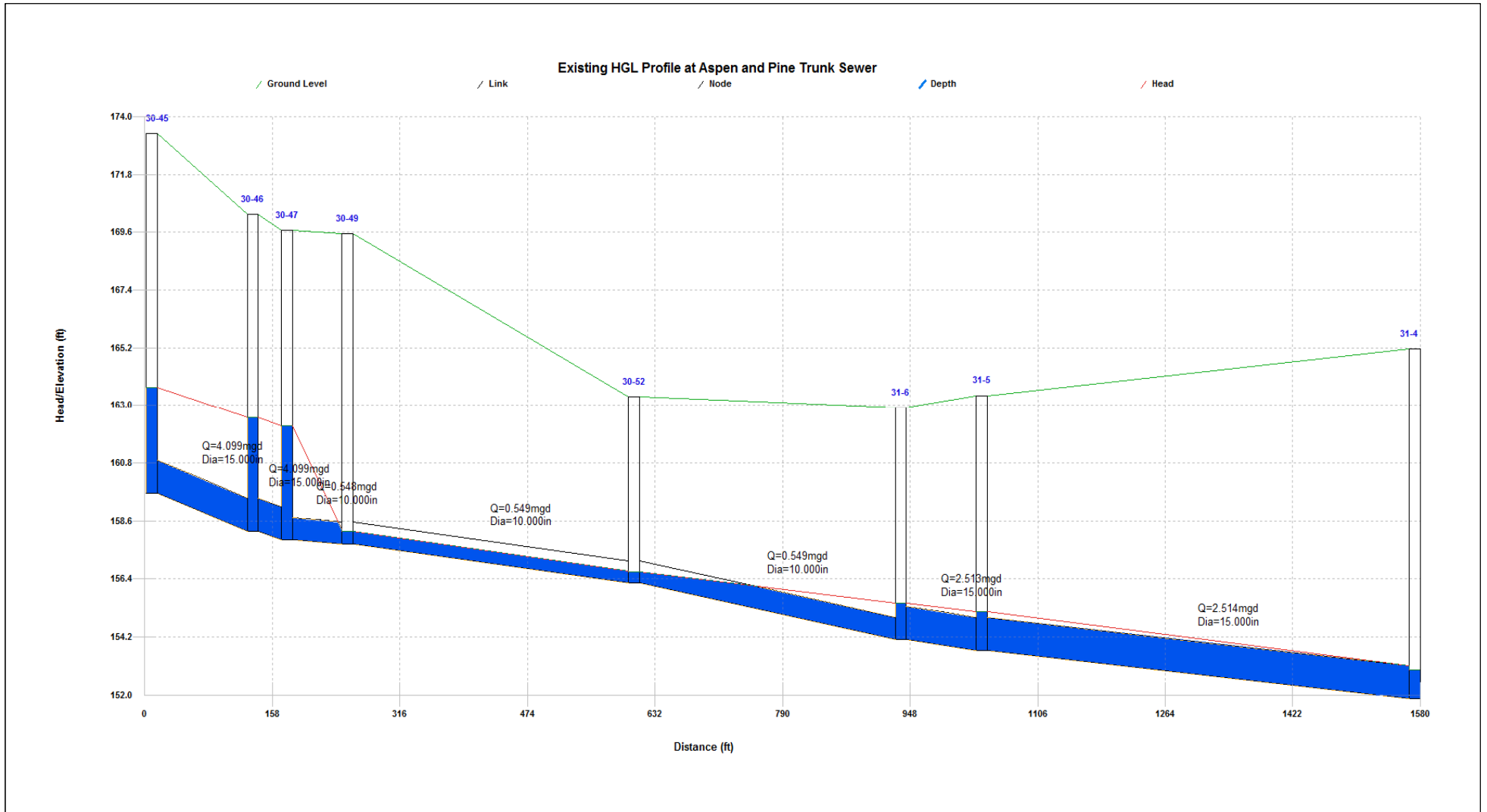


Figure E-4
Existing HGL Profile at Aspen and PineTrunk Sewer
 Castro Valley Sanitary District
 WWCS Master Plan Update

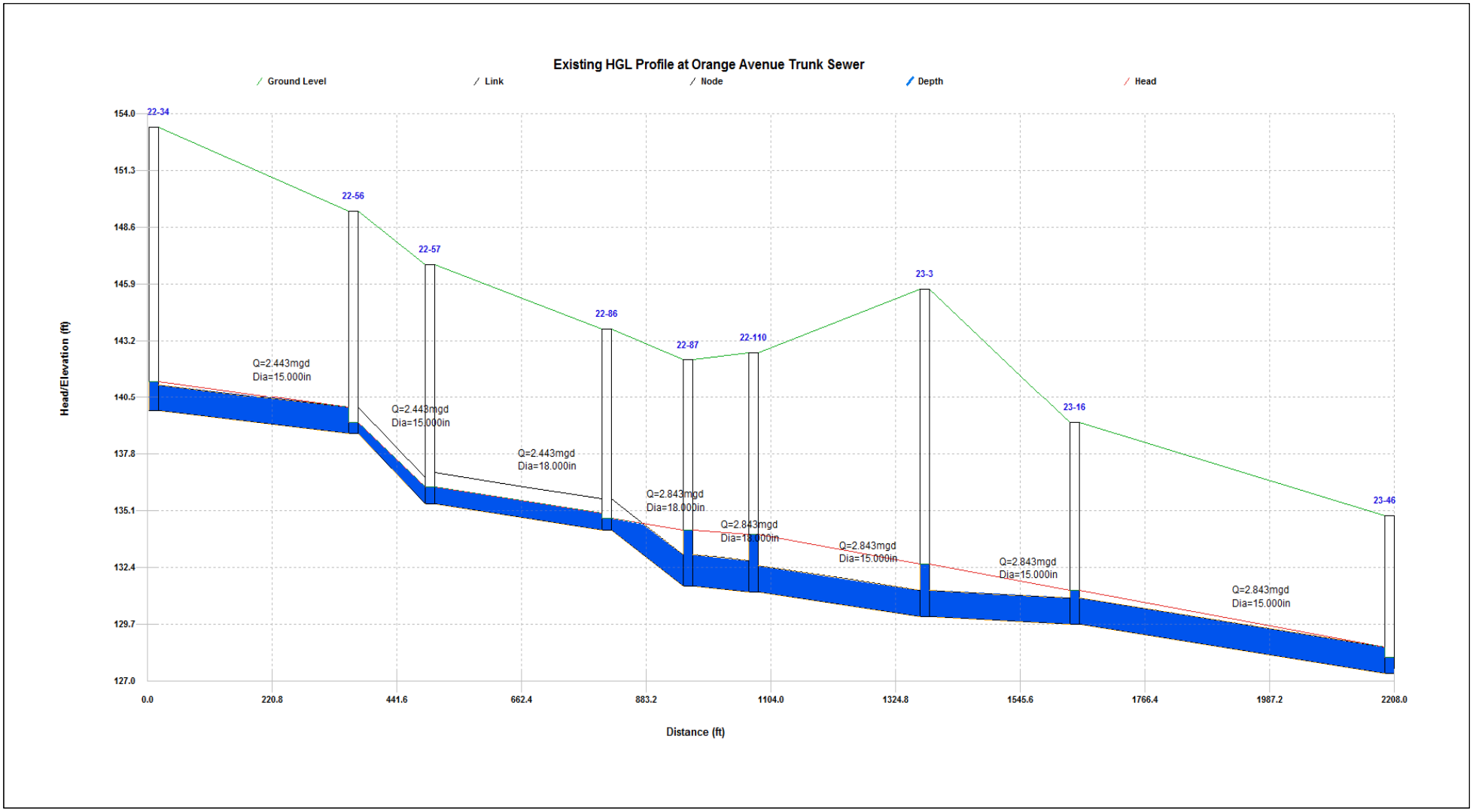


Figure E-5
Existing HGL Profile at
Orange Avenue Trunk Sewer
 Castro Valley Sanitary District
 WWCS Master Plan Update

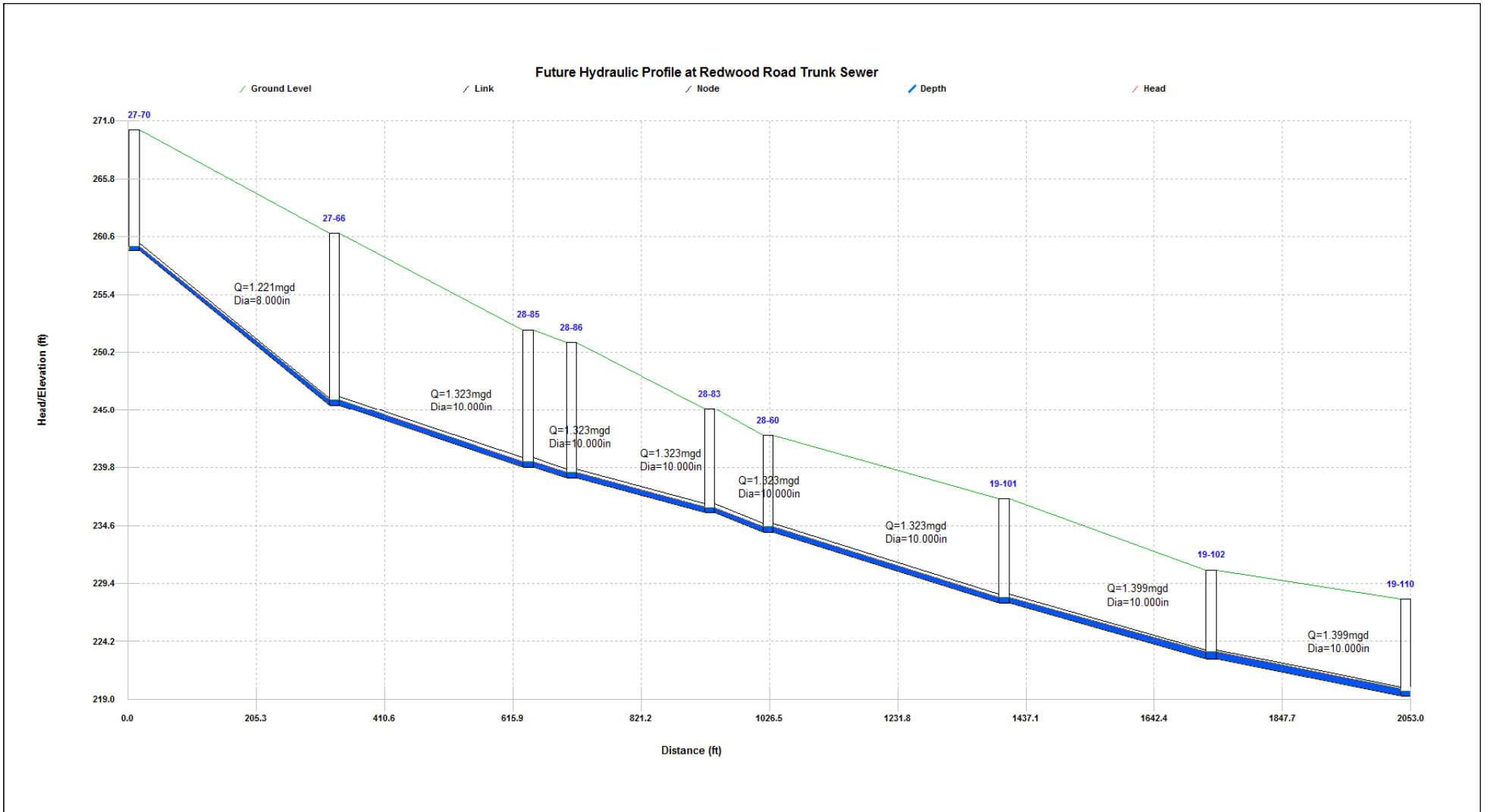


Figure E-6
Future Hydraulic Profile at Redwood Road Trunk Sewer
 Castro Valley Sanitary District
 WWCS Master Plan Update

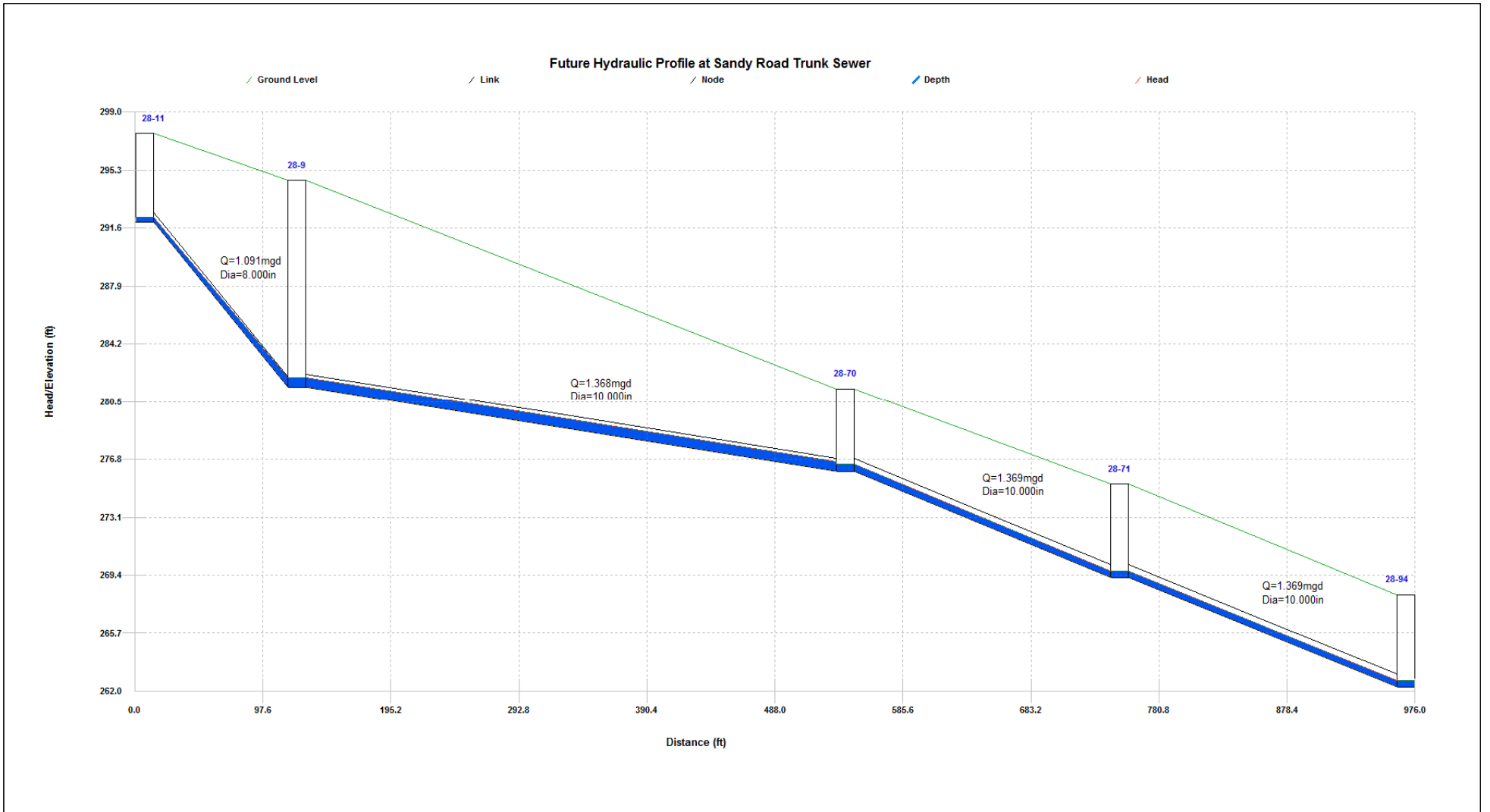


Figure E-7
Future Hydraulic Profile at Sandy Road Trunk Sewer
 Castro Valley Sanitary District
 WWCS Master Plan Update

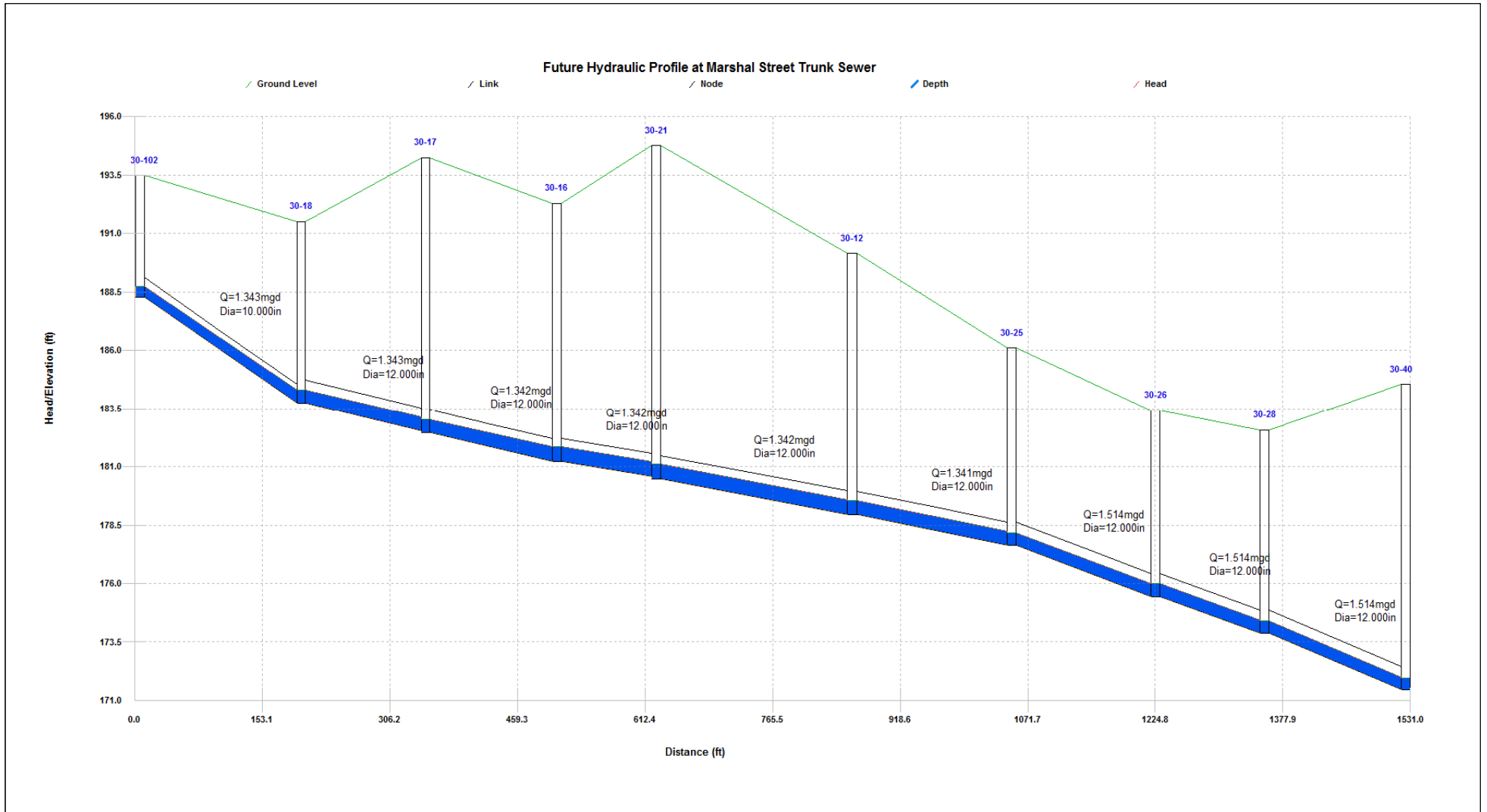


Figure E-8
Future Hydraulic Profile at Marshal Street Trunk Sewer
 Castro Valley Sanitary District
 WWCS Master Plan Update

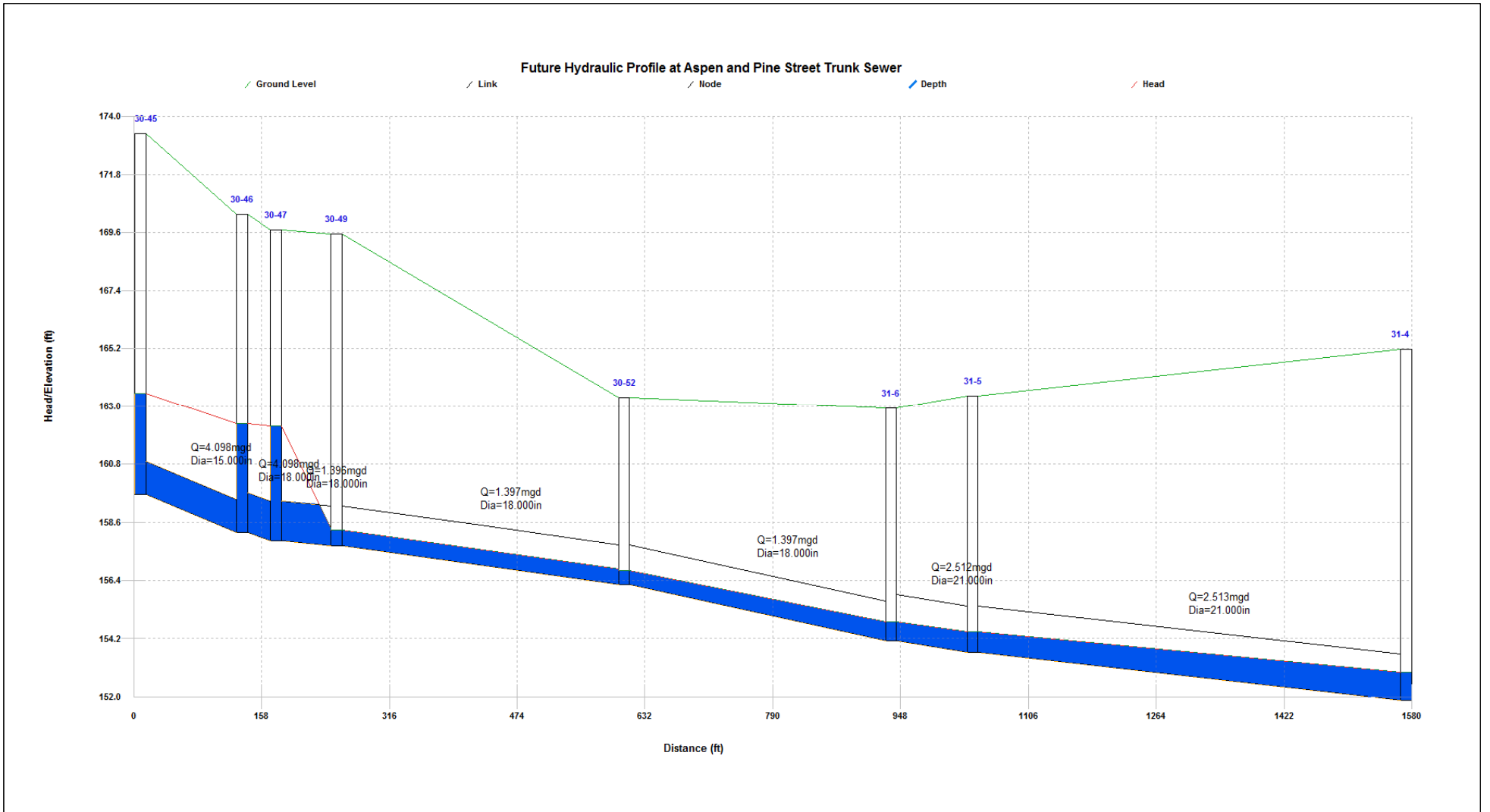


Figure E-9
Future Hydraulic Profile at Aspen and Pine Street Trunk Sewer
 Castro Valley Sanitary District
 WWCS Master Plan Update

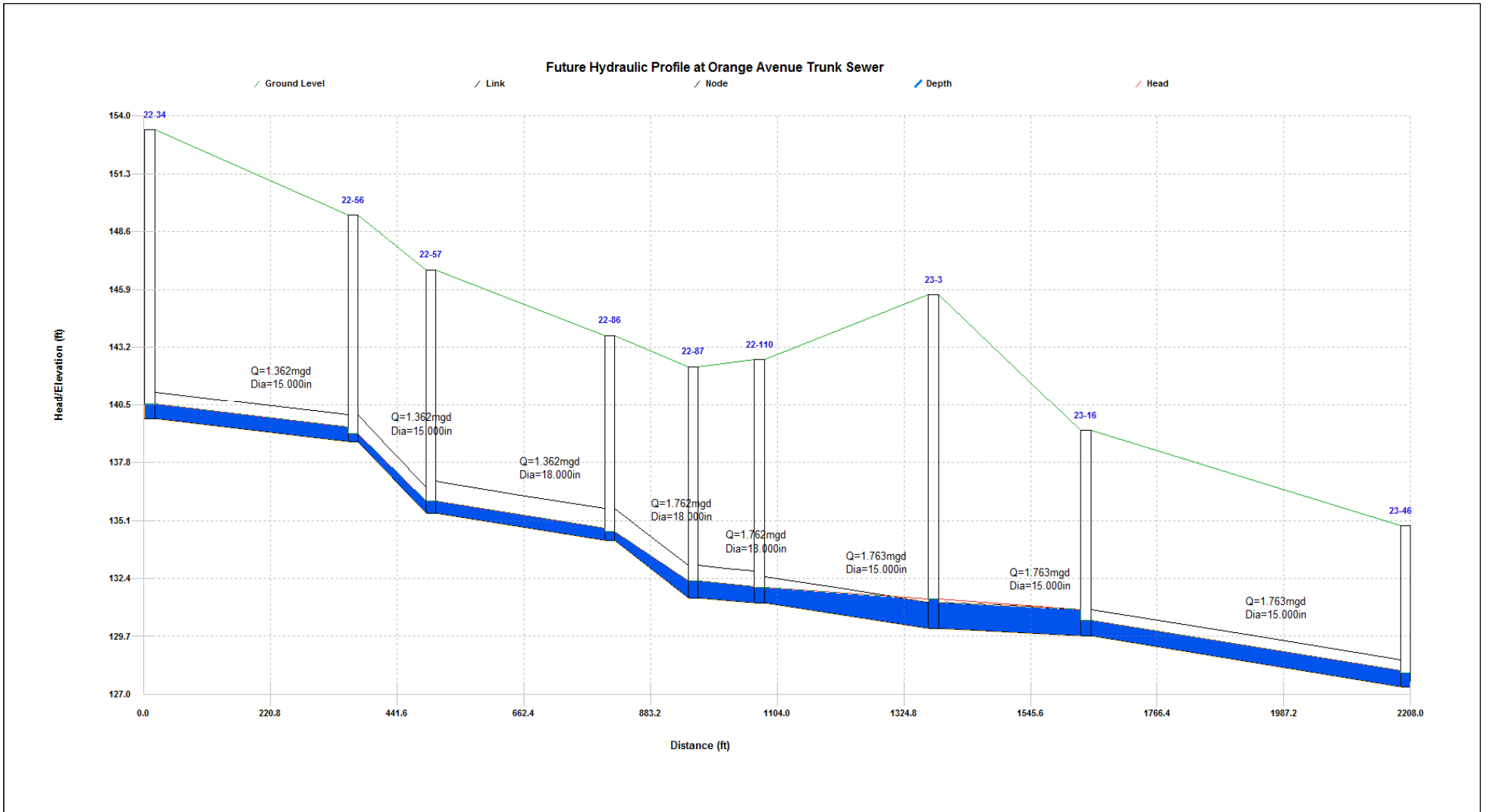


Figure E-10
Future Hydraulic Profile at Orange Avenue Trunk Sewer
 Castro Valley Sanitary District
 WWCS Master Plan Update