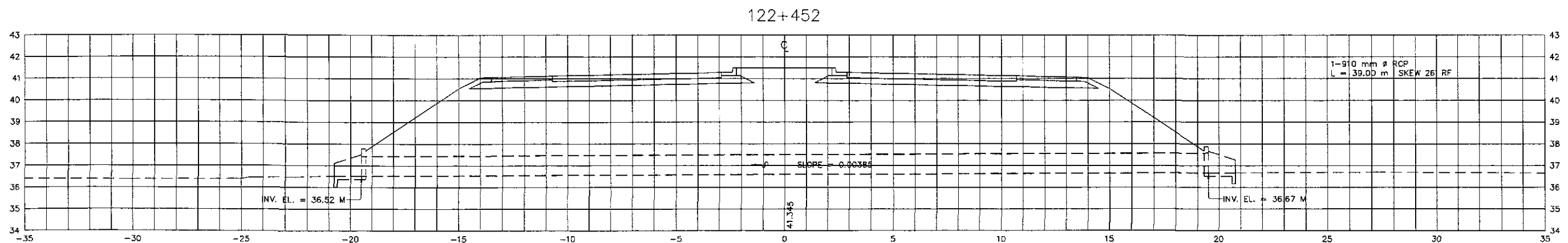
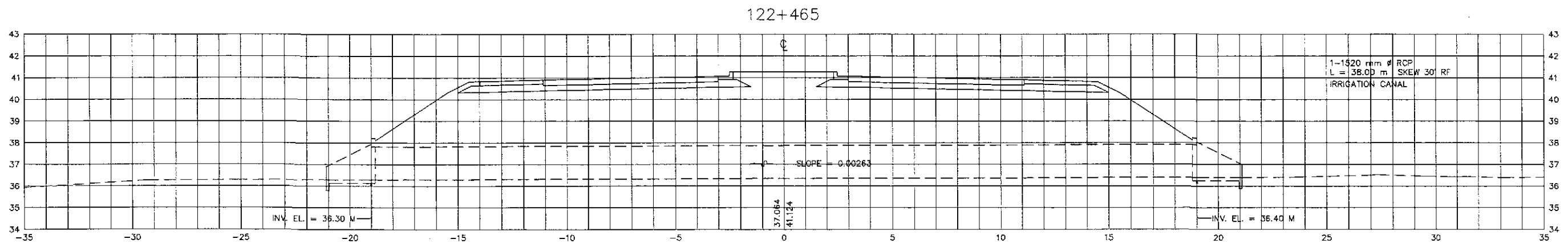
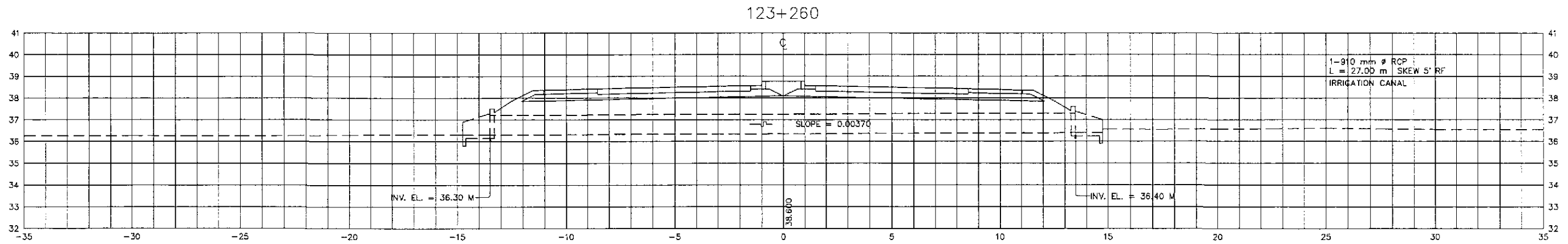
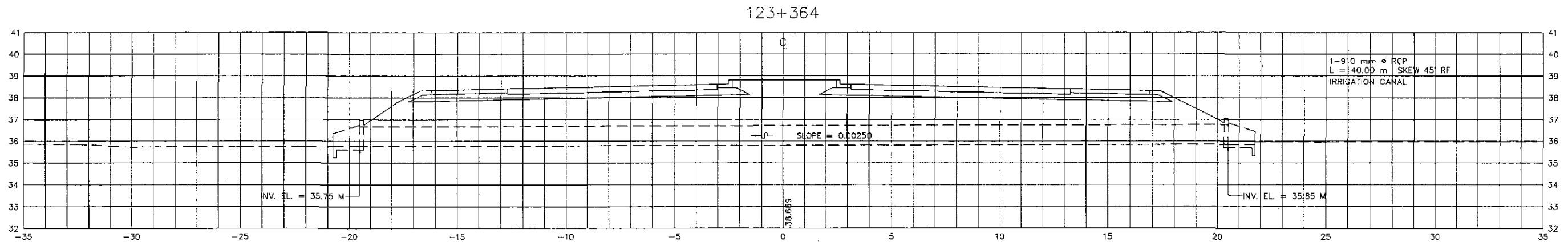
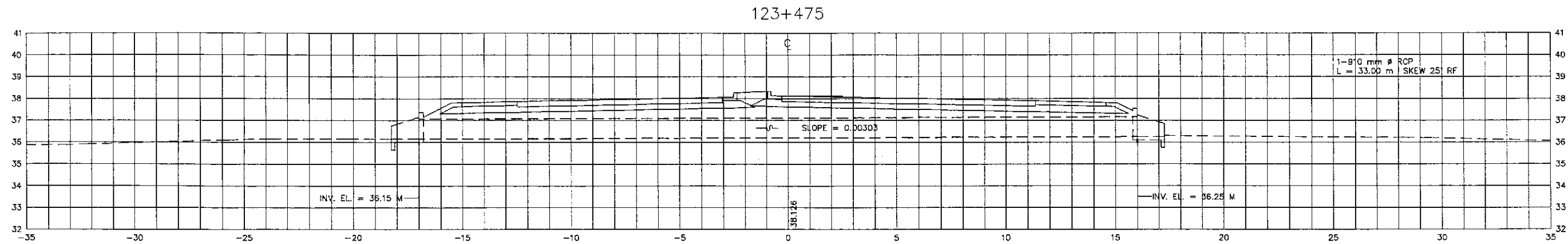
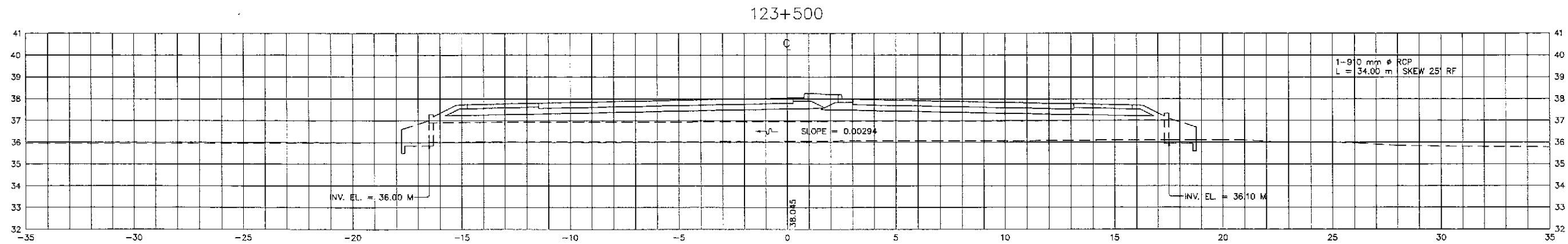
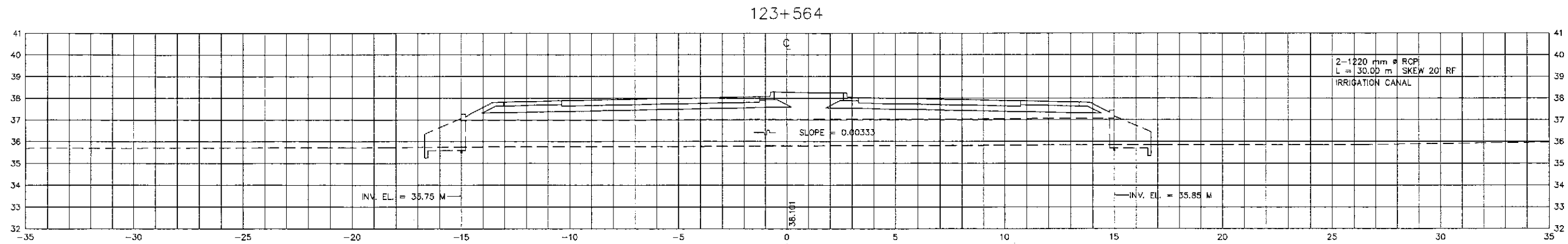
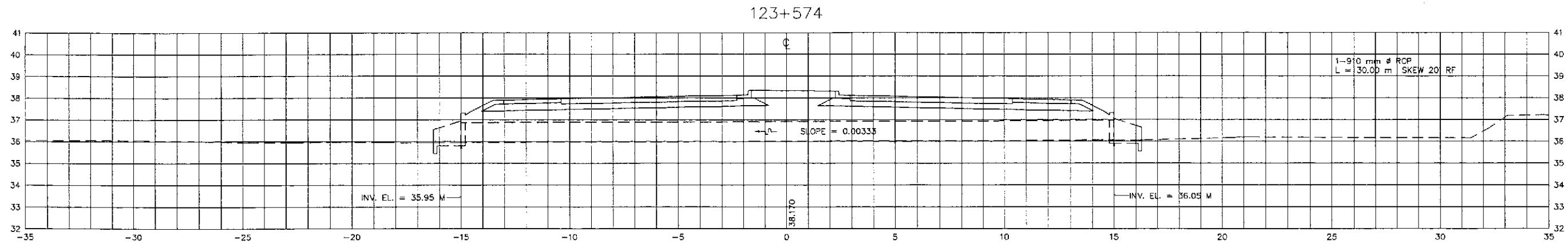


|  |                     |                          |   |   |   |  |  |  |            |
|--|---------------------|--------------------------|---|---|---|--|--|--|------------|
|  | DESIGNED: 10/17/02  | SIGNATURE: [Signature]   |   |   |   | PROJECT AND LOCATION:  | SCALE:   | SHEET CONTENTS:  | SHEET NO.: |
|  | CHECKED: 10/19/02   | SIGNATURE: [Signature]   | DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS<br>BUREAU OF DESIGN |   |   | THE DETAILED DESIGN STUDY ON<br>UPGRADING INTER-URBAN HIGHWAY SYSTEM<br>ALONG THE PAN-PHILIPPINE HIGHWAY<br>(Plaridel, Cabanatuan and San Jose Bypasses) | 1:100  | DRAINAGE CROSS-SECTION<br>ALONG BYPASS (ULTIMATE STAGE)<br>STA. 121+700 - STA. 122+340 | DC-01      |
|  | SUBMITTED: 10/21/02 | TEAM LEADER: [Signature] | Submitted By: DANILLO C. TRAJANO<br>Project Director        | Reviewed By: JOSEFINA M. ALAGAR<br>Chief, Highways Division | Recommended By: GILBERTO S. REYES<br>OIC, Director IV | Recommended By: MANUEL M. BONOAN<br>Undersecretary   | Approved By: SIMEON A. DATUMANONG<br>Secretary |  |            |

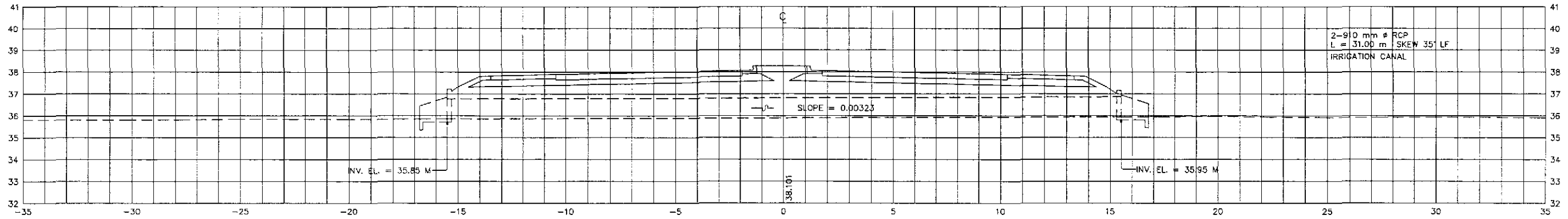


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|--|---|---|---|--|---|--|--|
|  |   | REPUBLIC OF THE PHILIPPINES<br><b>DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS</b> | PROJECT AND LOCATION :<br><b>THE DETAILED DESIGN STUDY ON<br/>         UPGRADING INTER-URBAN HIGHWAY SYSTEM<br/>         ALONG THE PAN-PHILIPPINE HIGHWAY<br/>         (Plaridel, Cabanatuan and San Jose Bypasses)</b> | SCALE :<br>1:100<br>FULL SIZE A1   | SHEET CONTENTS :<br><b>DRAINAGE CROSS-SECTION<br/>         ALONG BYPASS ( ULTIMATE STAGE )<br/>         STA. 122+452 - STA. 123+364</b> | SHEET NO. :<br><b>DC-02</b>                              |  |
|  | DESIGNED <i>[Signature]</i><br>CHECKED <i>[Signature]</i><br>SUBMITTED <i>[Signature]</i> | P.J.H. - PMO<br>Submitted By:<br><b>DANILO C. TRAJANO</b><br>Project Director | BUREAU OF DESIGN<br>Reviewed By:<br><b>JOSEFINA M. ALAGAR</b><br>Chief, Highways Division   | OFFICE OF THE SECRETARY<br>Recommended By:<br><b>GILBERTO S. REYES</b><br>OIC, Director IV | Approved By:<br><b>MANUEL M. BONGAON</b><br>Undersecretary  | Approved By:<br><b>SIMEON A. DATUMANONG</b><br>Secretary |  |
|  | PROJECT AND LOCATION :<br><b>CABANATUAN BYPASS - CONTRACT PACKAGE IV</b>                  |   |   |  |   |  |  |

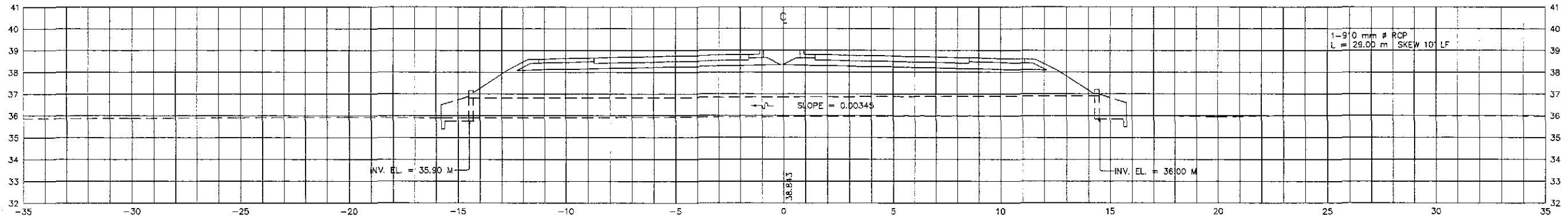


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|--|---|--|---|---|--|---|--|---|
|  |   |  | REPUBLIC OF THE PHILIPPINES<br>DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS      | PROJECT AND LOCATION :<br><b>THE DETAILED DESIGN STUDY ON<br/>         UPGRADING INTER-URBAN HIGHWAY SYSTEM<br/>         ALONG THE PAN-PHILIPPINE HIGHWAY<br/>         (Piaridel, Cabanatuan and San Jose Bypasses)</b> | SCALE :<br>1:100<br>FULL SIZE A1   | SHEET CONTENTS :<br><b>DRAINAGE CROSS-SECTION<br/>         ALONG BYPASS ( ULTIMATE STAGE )<br/>         STA. 123+475 - STA. 123+574</b> | SHEET NO. :<br><b>DC-03</b>                            |   |
|  | DESIGNED <i>[Signature]</i><br>CHECKED <i>[Signature]</i><br>SUBMITTED <i>[Signature]</i> | DATE<br>10/17/02<br>10/19/02<br>10/21/02 | SIGNATURE<br><i>[Signature]</i><br><i>[Signature]</i><br><i>[Signature]</i> | P.U.H. - P.M.O.<br>Submitted By: <b>DANILO C. TRAJANO</b><br>Project Director   | BUREAU OF DESIGN<br>Reviewed By: <b>JOSEFINA M. ALAGAR</b><br>Chief, Highways Division | OFFICE OF THE SECRETARY<br>Recommended By: <b>GILBERTO S. REYES</b><br>OIC, Director IV   | Approved By: <b>MANUEL M. BONDAN</b><br>Undersecretary | Approved By: <b>SIMEON A. DATUMANONG</b><br>Secretary |
|  | CABANATUAN BYPASS - CONTRACT PACKAGE IV   |  |   |   |  |   |  |   |

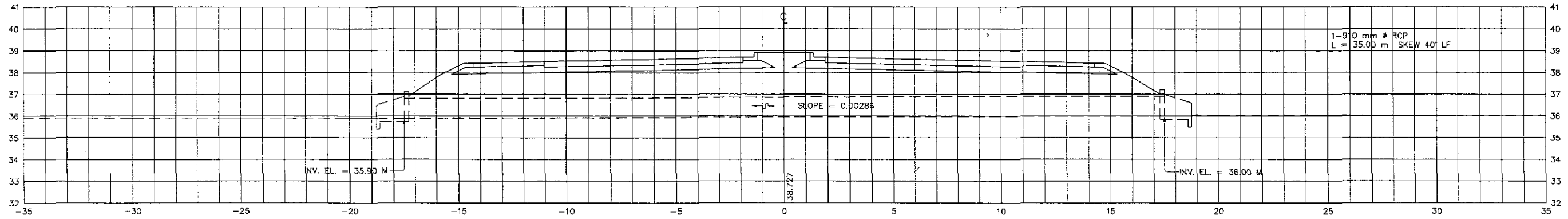
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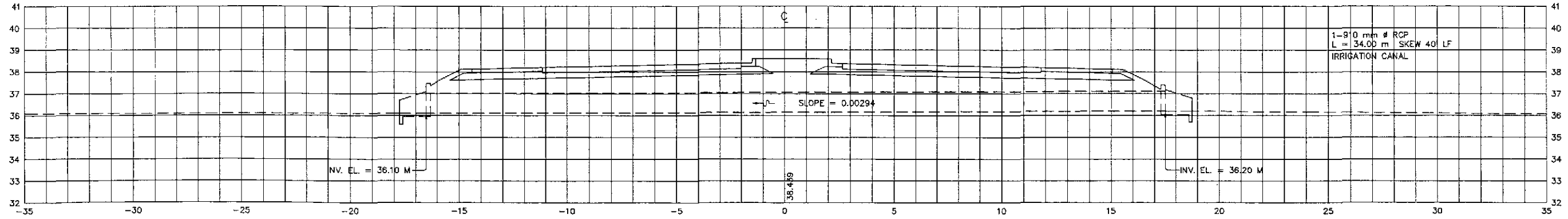
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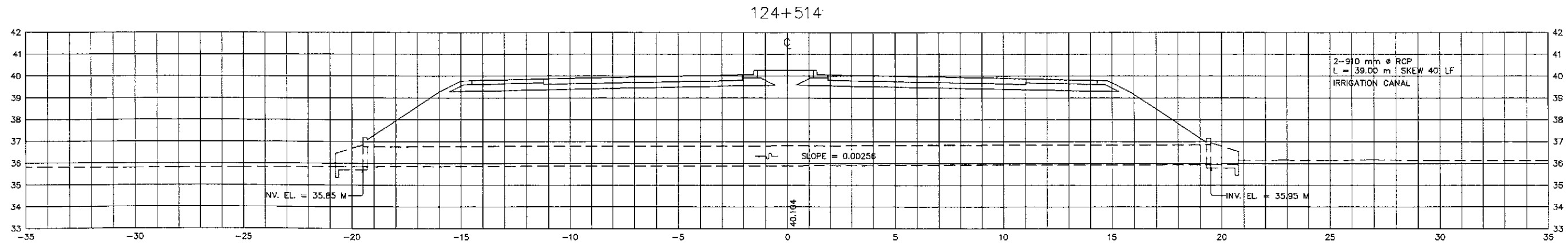
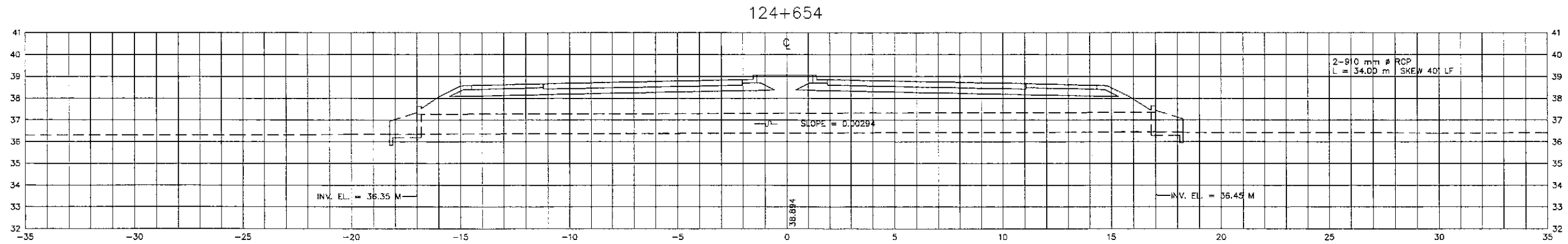
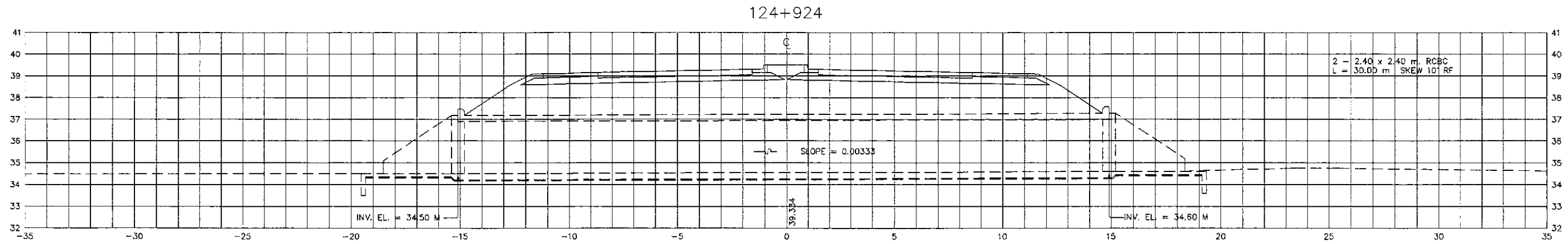
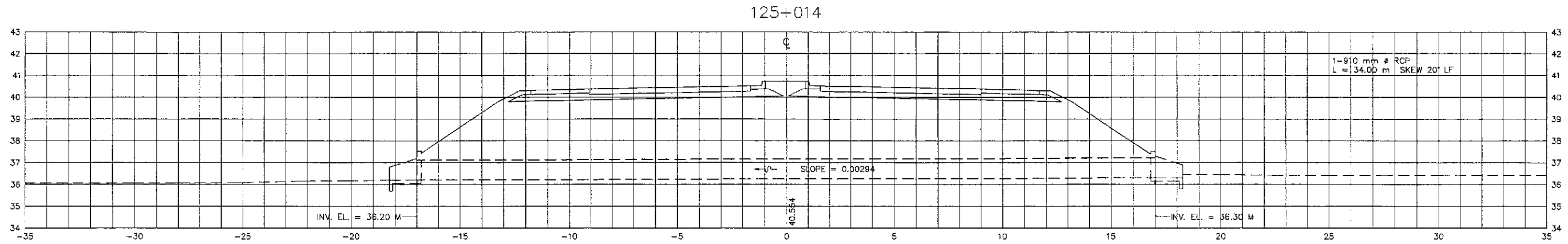
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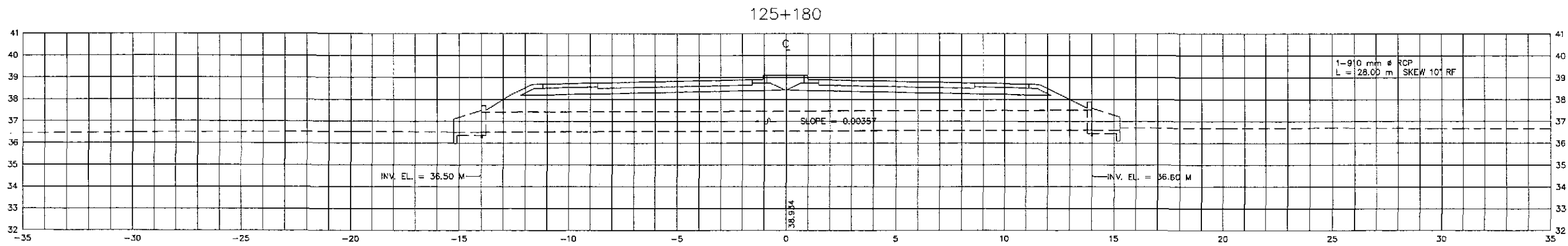
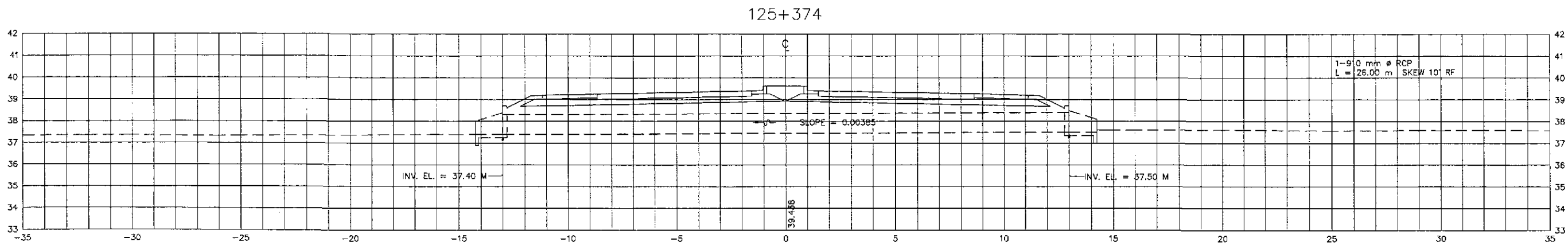
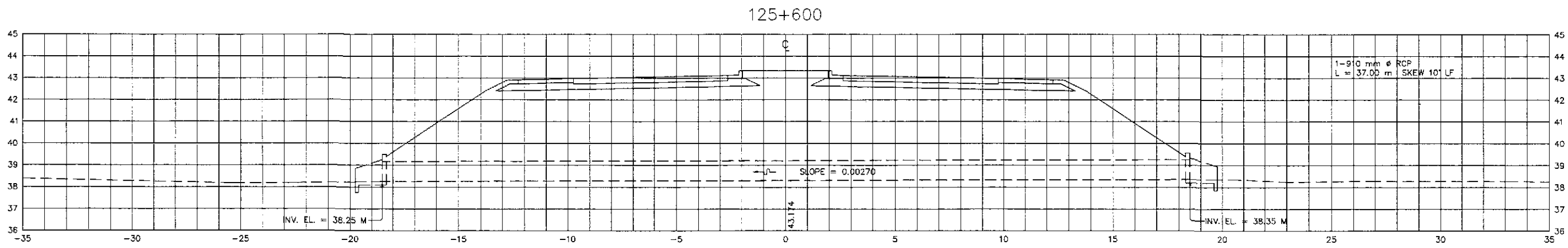
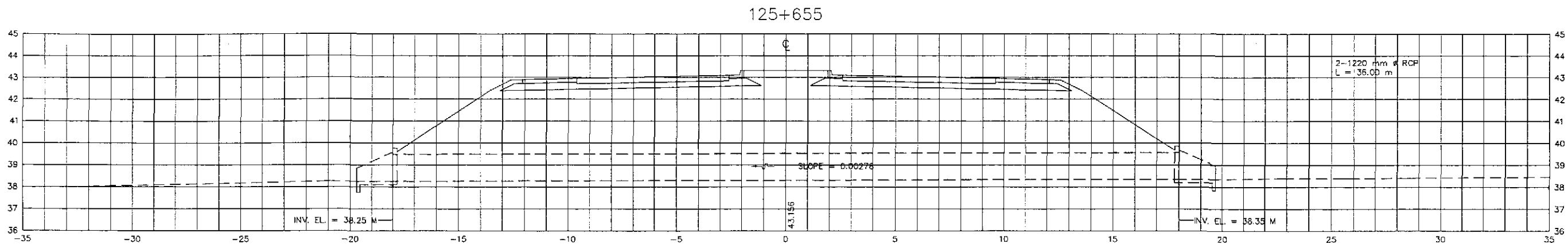
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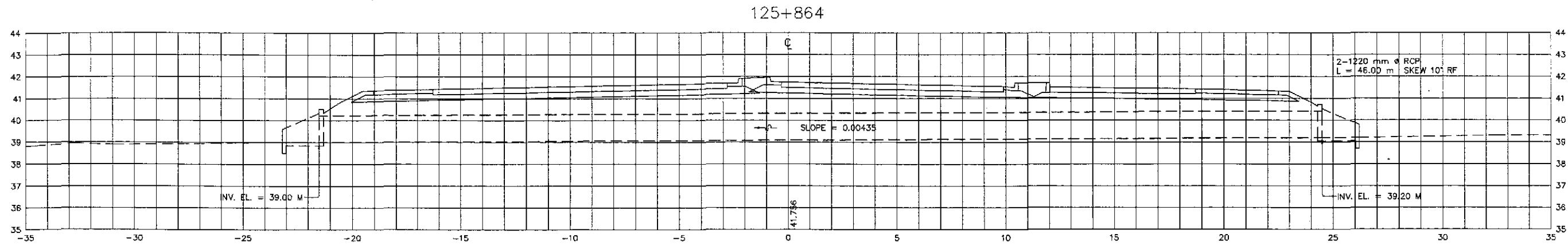
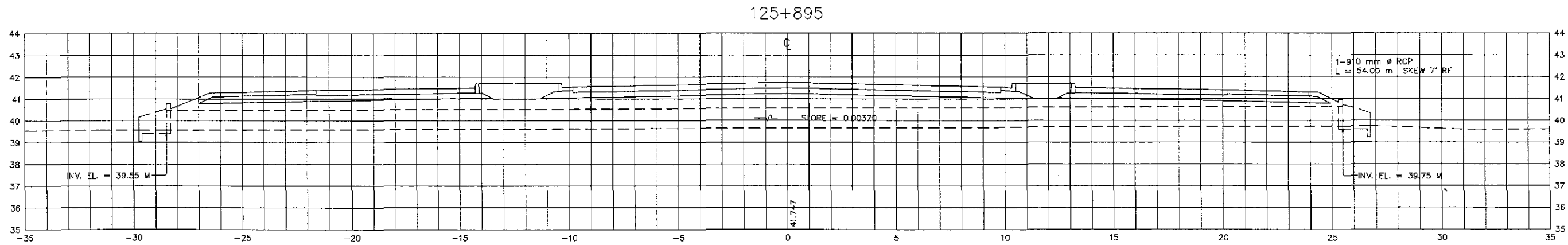
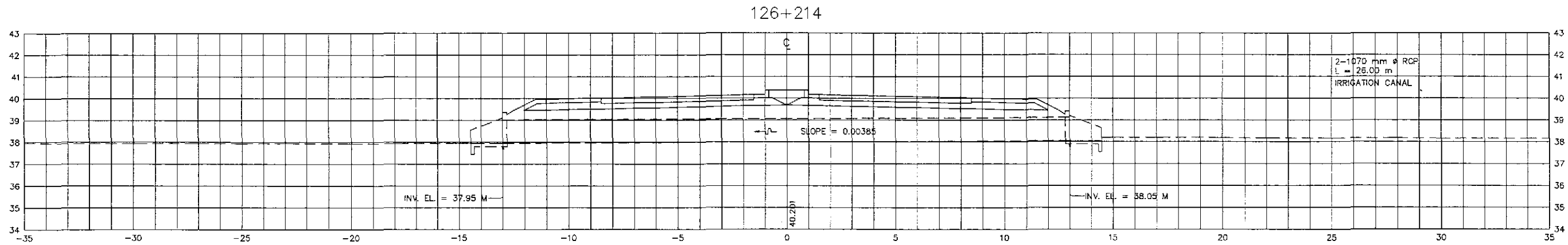
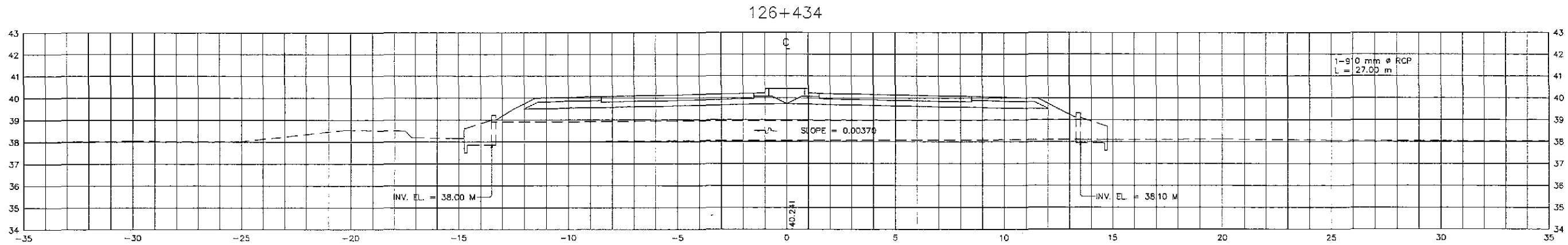
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|--|-----------|--|--------------------|--|--|---|--|---|--|-------------|
|  | DESIGNED  | 10/17/02   | <i>[Signature]</i> | <p>REPUBLIC OF THE PHILIPPINES<br/>DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS</p> | PROJECT AND LOCATION :   |   |  | SCALE :   | SHEET CONTENTS :   | SHEET NO. : |
|  | CHECKED   | 10/19/02   | <i>[Signature]</i> |  | THE DETAILED DESIGN STUDY ON<br>UPGRADING INTER-URBAN HIGHWAY SYSTEM<br>ALONG THE PAN-PHILIPPINE HIGHWAY<br>(Plaridel, Cabanatuan and San Jose Bypasses) |   |  | 1:100   | DRAINAGE CROSS-SECTION<br>ALONG BYPASS ( ULTIMATE STAGE )<br>STA. 123+654 - STA. 124+360 | DC-04       |
|  | SUBMITTED | 10/21/02   | <i>[Signature]</i> |  | CABANATUAN BYPASS - CONTRACT PACKAGE IV  |   |  |   |  |             |
| Submitted By: <b>DANILO C. TRAJANO</b><br>Project Director |           | Reviewed By: <b>JOSEFINA M. ALAGAR</b><br>Chief, Highways Division |                    | Recommended By: <b>GILBERTO S. REYES</b><br>OIC, Director IV                   |  | Recommended By: <b>MANUEL M. BONDAN</b><br>Undersecretary |  | Approved By: <b>SIMEON A. DATUMANONG</b><br>Secretary |  |             |



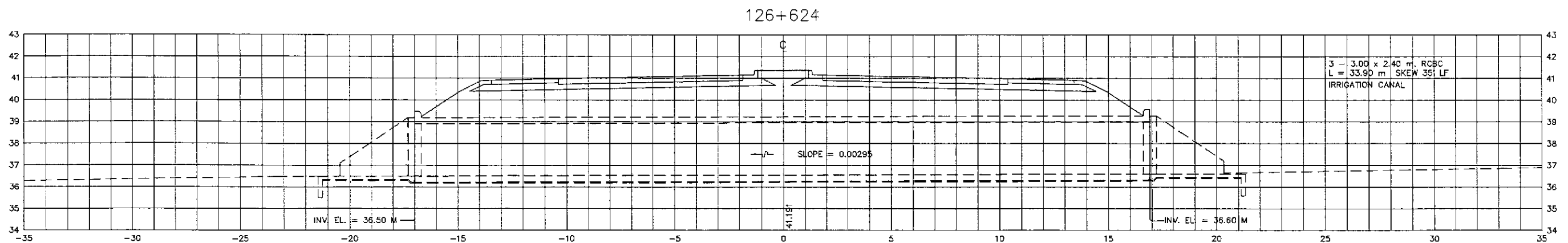
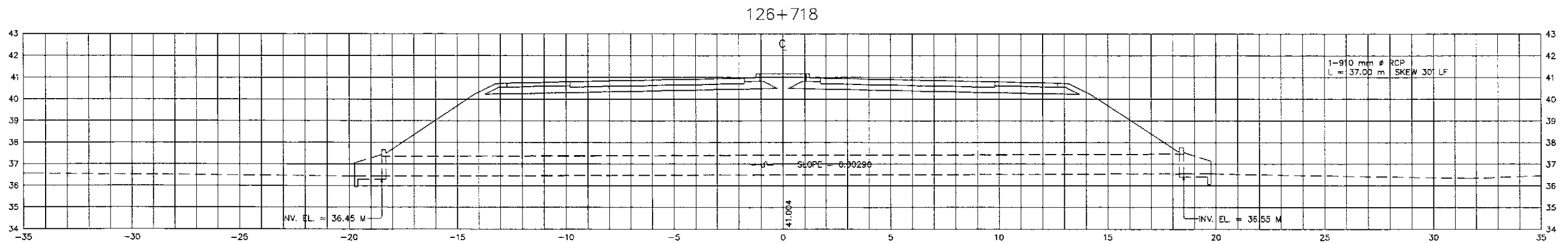
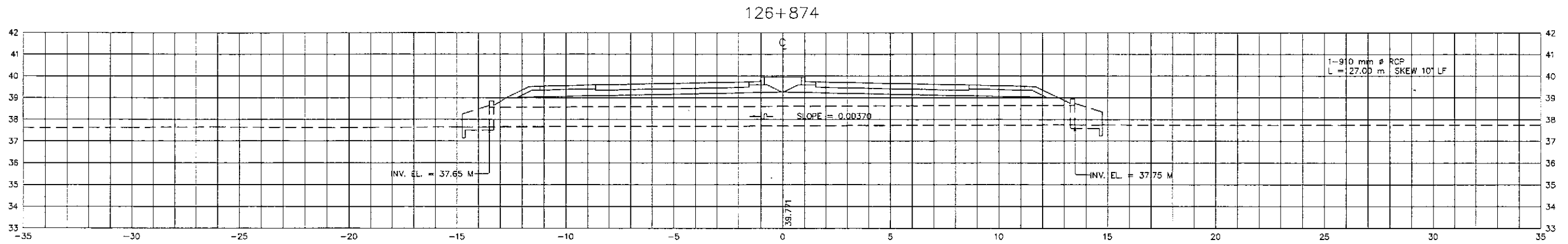
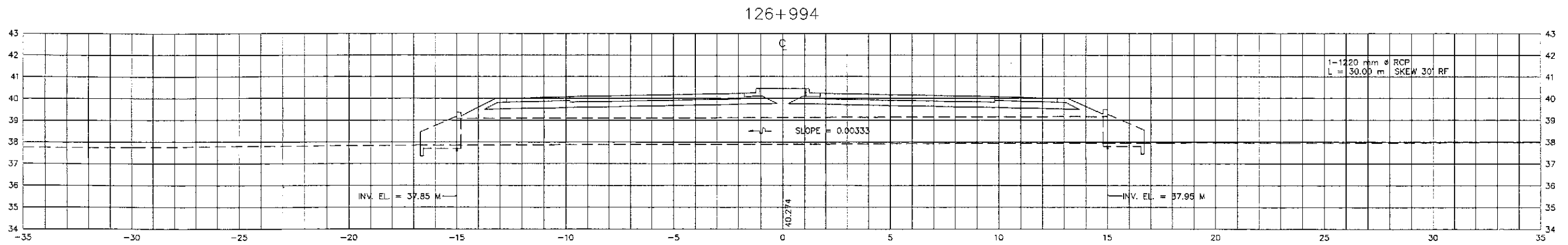
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|--|-----------|----------|--------------------|--|--|--|---|---|----------------------------------|---|-----------------------------|
|  | DESIGNED  | DATE     | SIGNATURE          |  | REPUBLIC OF THE PHILIPPINES  |  |   | PROJECT AND LOCATION :<br><b>THE DETAILED DESIGN STUDY ON<br/>         UPGRADING INTER-URBAN HIGHWAY SYSTEM<br/>         ALONG THE PAN-PHILIPPINE HIGHWAY<br/>         (Plaridel, Cabanatuan and San Jose Bypasses)</b><br><b>CABANATUAN BYPASS - CONTRACT PACKAGE IV</b> | SCALE :<br>1:100<br>FULL SIZE A1 | SHEET CONTENTS :<br><b>DRAINAGE CROSS-SECTION<br/>         ALONG BYPASS ( ULTIMATE STAGE )<br/>         STA. 124+514 - STA. 125+014</b> | SHEET NO. :<br><b>DC-05</b> |
|  | CHECKED   | 10/19/02 | <i>[Signature]</i> |  | DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS                                  |  |   |   |                                  |   |                             |
|  | SUBMITTED | 10/21/02 | <i>[Signature]</i> |  | BUREAU OF DESIGN<br>Submitted By: DANILLO C. TRAJANO<br>Project Director | OFFICE OF THE SECRETARY<br>Reviewed By: JOSEFINA M. ALAGAR<br>Chief, Highways Division | Recommended By: GILBERTO S. REYES<br>O/C, Director IV |   |                                  |   |                             |



|           |          |                    |  |                                       |  |  |                                       |                       |   |              |
|-----------|----------|--------------------|--|---------------------------------------|--|--|---------------------------------------|-----------------------|---|--------------|
|           | DATE     | SIGNATURE          | <br>REPUBLIC OF THE PHILIPPINES<br>DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS |                                       |  | PROJECT AND LOCATION :                         | SCALE :                               | SHEET CONTENTS :      | SHEET NO. :   |              |
|           | DESIGNED | 10/17/07           | <i>[Signature]</i>   | Submitted By:                         | PJHL - PMO                                     | BUREAU OF DESIGN                               | OFFICE OF THE SECRETARY               | 1:100<br>FULL SIZE A1 | <b>DRAINAGE CROSS-SECTION</b><br>ALONG BYPASS ( ULTIMATE STAGE )<br>STA. 125+180 - STA. 125+655 | <b>DC-06</b> |
|           | CHECKED  | 10/19/07           | <i>[Signature]</i>   | Reviewed By:                          | JOSEFINA M. ALAGAR<br>Chief, Highways Division | Recommended By:                                | GILBERTO S. REYES<br>OIC, Director IV |                       |   |              |
| SUBMITTED | 10/21/07 | <i>[Signature]</i> | Team Leader:   | DANILO C. TRAJANO<br>Project Director | (See cover sheet for Signature/Approval)       | MANUEL M. BONDAN<br>Undersecretary             | Approved By:                          |                       |   |              |
|           |          |                    |  |                                       |  | <b>CABANATUAN BYPASS - CONTRACT PACKAGE IV</b> |                                       |                       |   |              |



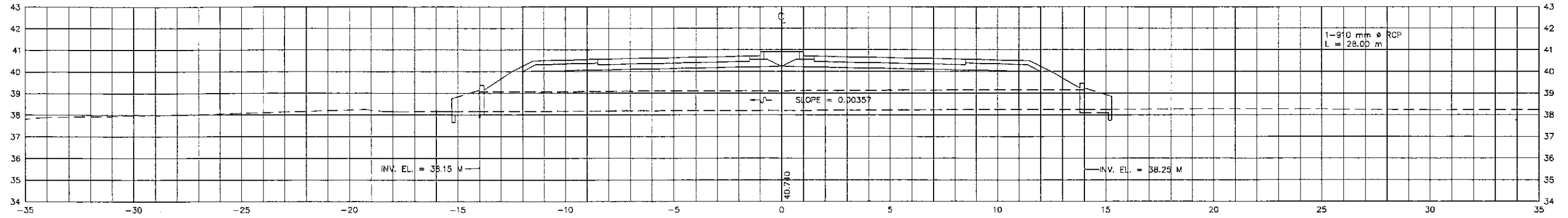
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|  |  |   | REPUBLIC OF THE PHILIPPINES<br><b>DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS</b>      | PROJECT AND LOCATION :<br><b>THE DETAILED DESIGN STUDY ON<br/>         UPGRADING INTER-URBAN HIGHWAY SYSTEM<br/>         ALONG THE PAN-PHILIPPINE HIGHWAY<br/>         (Plaridel, Cabanatuan and San Jose Bypasses)</b> | SCALE :<br>1:100<br>FULL SIZE A1                    | SHEET CONTENTS :<br><b>DRAINAGE CROSS-SECTION<br/>         ALONG BYPASS ( ULTIMATE STAGE )<br/>         STA. 125+864 - STA. 126+434</b> | SHEET NO. :<br><b>DC-07</b> |  |
|  | DESIGNED <i>10/17/02</i><br>CHECKED <i>10/19/02</i><br>SUBMITTED <i>10/21/02</i> | SIGNATURE<br><i>[Signature]</i><br>Submitted By:<br><i>[Signature]</i><br>TEAM LEADER | BUREAU OF DESIGN<br>Reviewed By:<br>JOSEFINA M. ALAGAR<br>Chief, Highways Division | OFFICE OF THE SECRETARY<br>Recommended By:<br>GILBERTO S. REYES<br>OIC, Director IV   | Approved By:<br>MANUEL M. BONGAON<br>Undersecretary | Approved By:<br>SIMEON A. DATUMANONG<br>Secretary   |                             |  |
|  |  | DANILLO C. TRAJANO<br>Project Director  |  |   |   |   |                             |  |



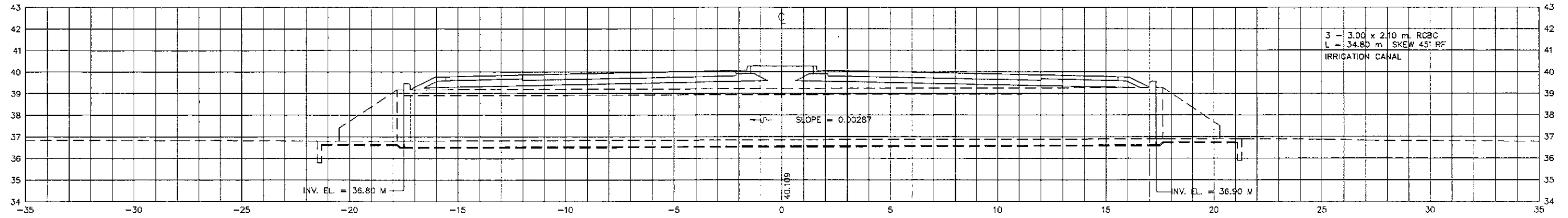
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|  |   |               |  | REPUBLIC OF THE PHILIPPINES<br>DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS |  |   | PROJECT AND LOCATION :<br><b>THE DETAILED DESIGN STUDY ON<br/>         UPGRADING INTER-URBAN HIGHWAY SYSTEM<br/>         ALONG THE PAN-PHILIPPINE HIGHWAY<br/>         (Plaridel, Cabanatuan and San Jose Bypasses)</b> | SCALE :<br>1:100<br>FULL SIZE A1 | SHEET CONTENTS :<br><b>DRAINAGE CROSS-SECTION<br/>         ALONG BYPASS ( ULTIMATE STAGE )<br/>         STA. 126+624 - STA. 126+994</b> | SHEET NO. :<br><b>DC-08</b> |
|  | DESIGNED 10/17/02<br>CHECKED 10/19/02<br>SUBMITTED 10/21/02 | SIGNATURE<br> | PUHL - PMO<br>Submitted By:            | BUREAU OF DESIGN<br>Reviewed By:                                       | OFFICE OF THE SECRETARY<br>Recommended By: | OFFICE OF THE SECRETARY<br>Approved By: |   |                                  |   |                             |
|  |   |               | DANILLO C. TRAJANO<br>Project Director | JOSEFINA M. ALAGAR<br>Chief, Highways Division                         | GILBERTO S. REYES<br>OIC, Director IV      | MANUEL M. BONDAN<br>Undersecretary      |   |                                  |   |                             |



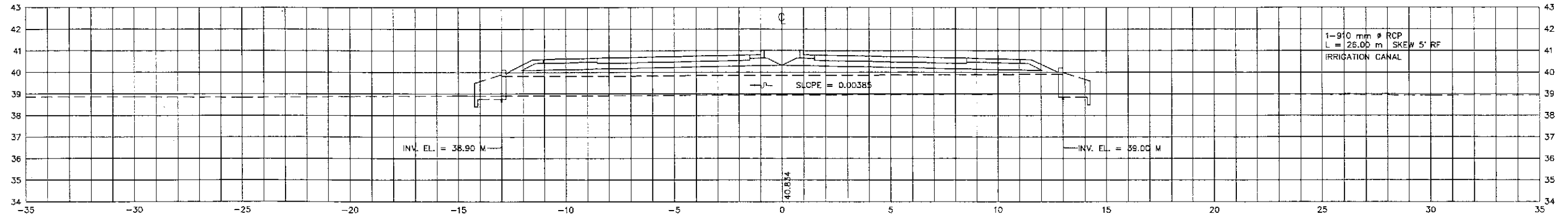
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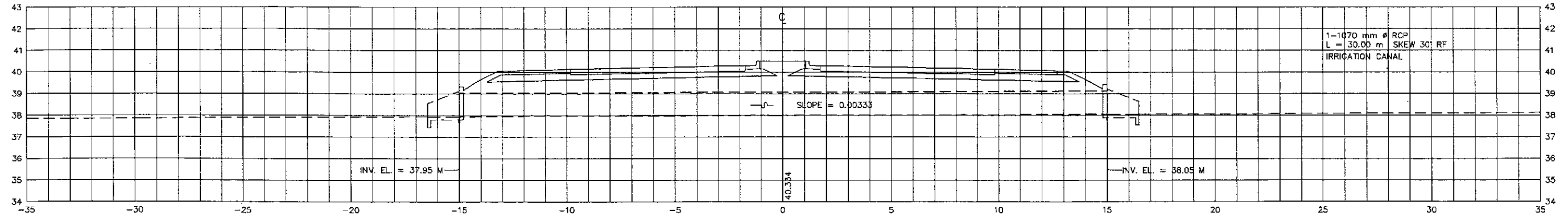
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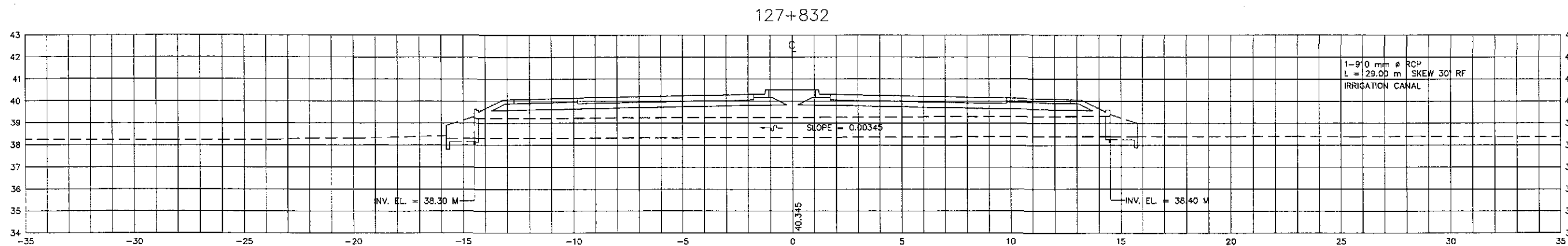
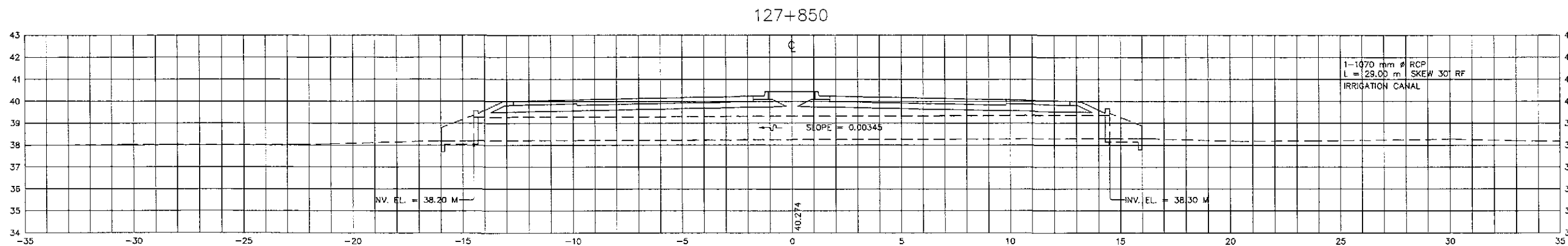
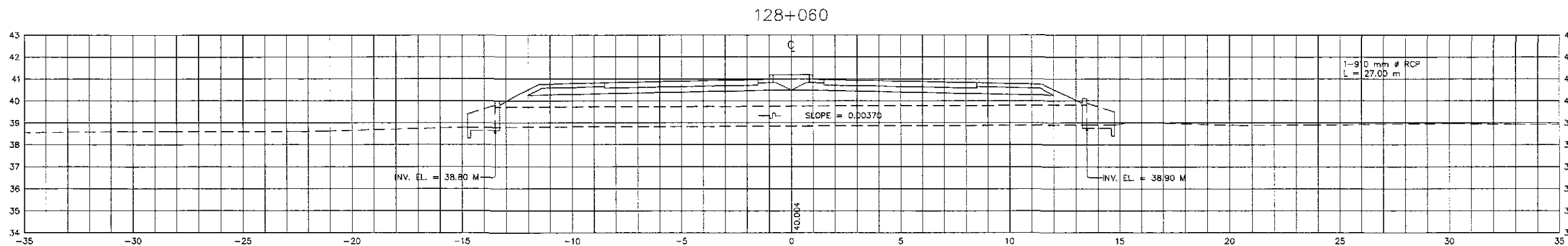
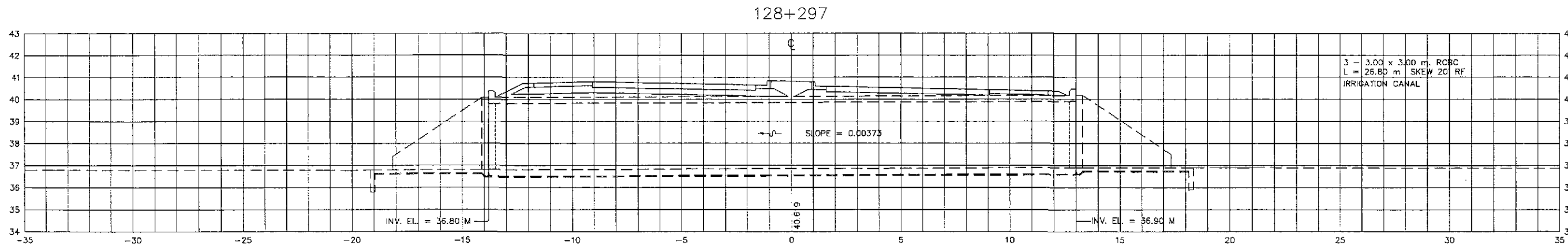
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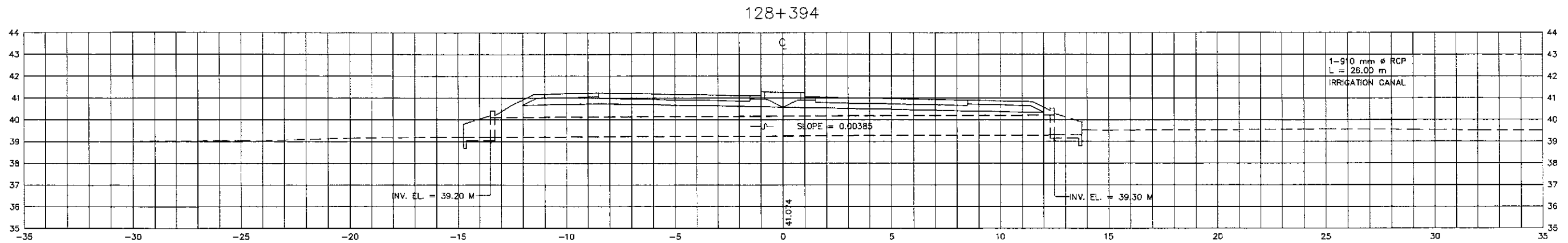
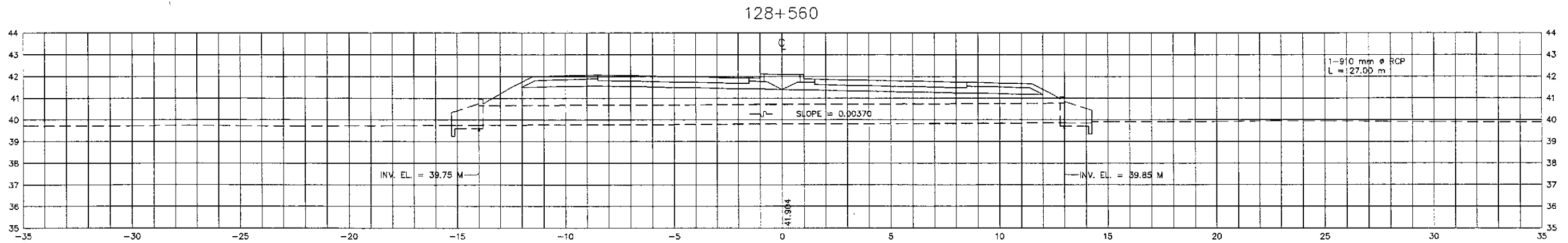
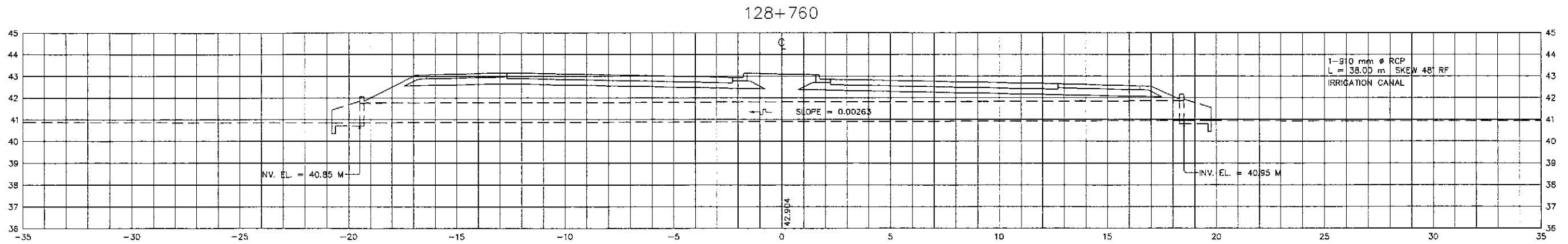
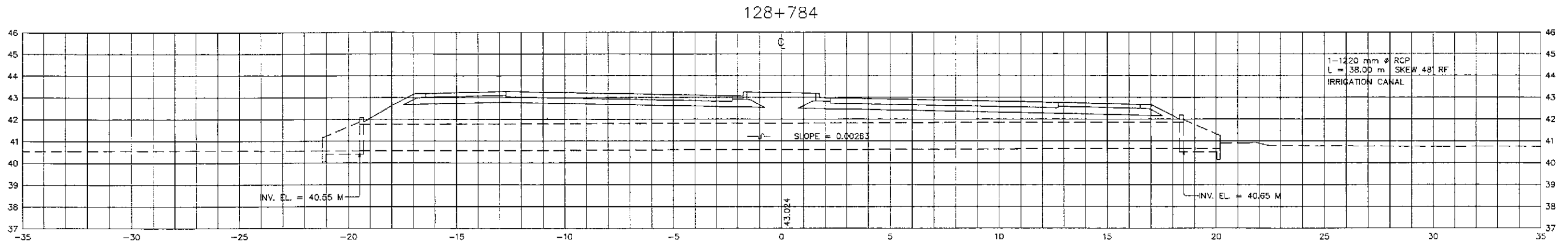
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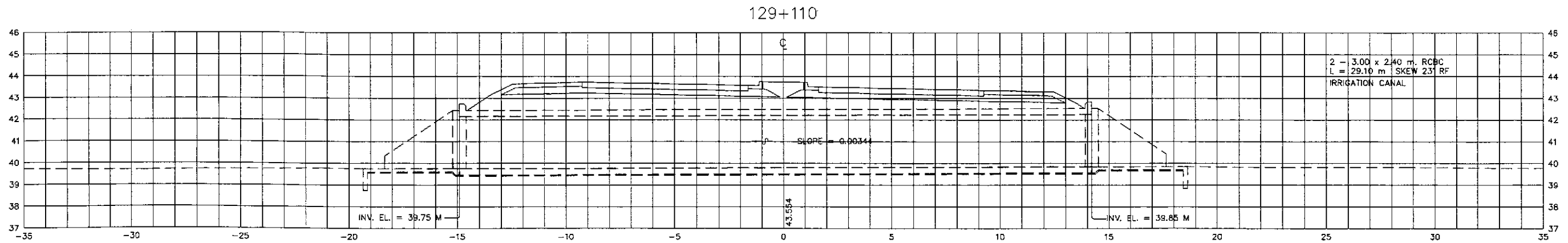
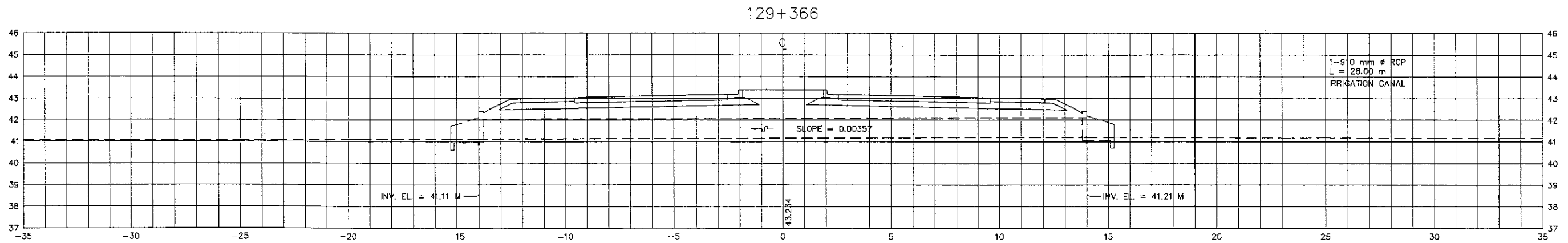
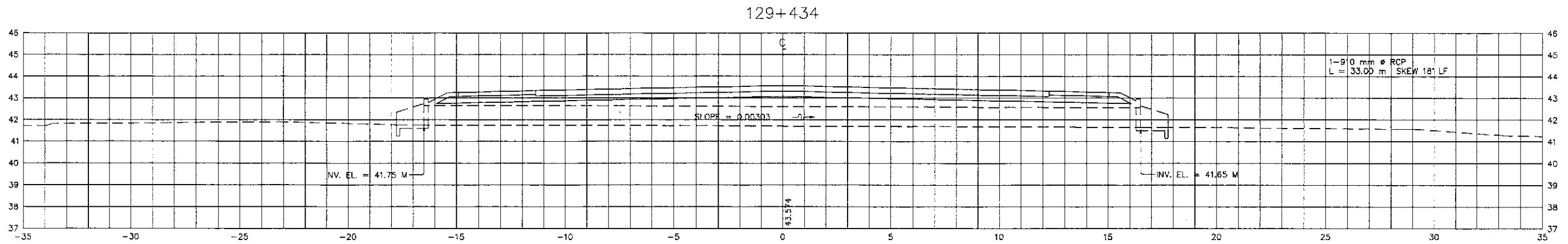
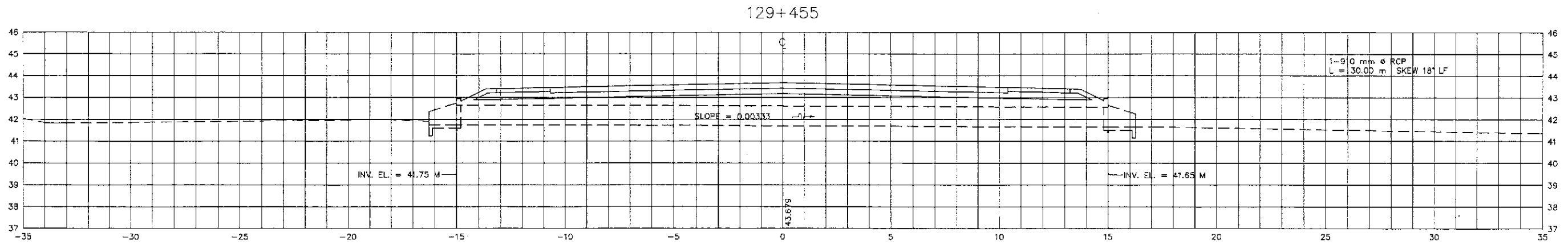
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|  | DESIGNED  | 10/17/02 |  |  | REPUBLIC OF THE PHILIPPINES<br>DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS |  |  | PROJECT AND LOCATION :<br><b>THE DETAILED DESIGN STUDY ON<br/>UPGRADING INTER-URBAN HIGHWAY SYSTEM<br/>ALONG THE PAN-PHILIPPINE HIGHWAY<br/>(Plaridel, Cabanatuan and San Jose Bypasses)</b><br>CABANATUAN BYPASS - CONTRACT PACKAGE IV | SCALE :<br>1:100<br>FULL SIZE A1 | SHEET CONTENTS :<br><b>DRAINAGE CROSS-SECTION<br/>ALONG BYPASS ( ULTIMATE STAGE )<br/>STA. 127+006 - STA. 127+692</b> | SHEET NO. :<br><b>DC-09</b> |
|  | CHECKED   | 10/19/02 |  |  | BUREAU OF DESIGN   |  |  |   |                                  |   |                             |
|  | SUBMITTED | 10/21/02 |  |  | Submitted By:<br>DANILLO C. TRAJANO<br>Project Director                | Reviewed By:<br>JOSEFINA M. ALAGAR<br>Chief, Highways Division | Recommended By:<br>GILBERTO S. REYES<br>OIC, Director IV |   |                                  |   |                             |



|  |  |                         |                                       |  |   |   |   |  |  |
|--|--|-------------------------|---------------------------------------|--|---|---|---|--|--|
|  |  |                         |                                       | REPUBLIC OF THE PHILIPPINES<br>DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS   | PROJECT AND LOCATION :<br><b>THE DETAILED DESIGN STUDY ON<br/>         UPGRADING INTER-URBAN HIGHWAY SYSTEM<br/>         ALONG THE PAN-PHILIPPINE HIGHWAY<br/>         (Plaridel, Cabanatuan and San Jose Bypasses)</b> | SCALE :<br>1:100<br>FULL SIZE A1                  | SHEET CONTENTS :<br><b>DRAINAGE CROSS-SECTION<br/>         ALONG BYPASS ( ULTIMATE STAGE )<br/>         STA. 127+832 - STA. 128+297</b> | SHEET NO. :<br><b>DC-10</b>                    |  |
|  | DESIGNED <i>10/17/02</i>                       | CHECKED <i>10/19/02</i> | SUBMITTED <i>10/21/02</i>             | BUREAU OF DESIGN<br>Submitted By: DANILLO C. TRAJANO<br>Project Director | OFFICE OF THE SECRETARY<br>Reviewed By: JOSEFINA M. ALAGAR<br>Chief, Highways Division  | Approved By: GILBERTO S. REYES<br>OC, Director IV | Approved By: MANUEL M. BONOAN<br>Undersecretary   | Approved By: SIMEON A. DATUMANONG<br>Secretary |  |
|  | JICA<br>JAPAN INTERNATIONAL COOPERATION AGENCY |                         | KATAHIRA & ENGINEERS<br>INTERNATIONAL |  | YEO<br>YACHIYO ENGINEERING<br>CO., LTD.   |   |   |  |  |

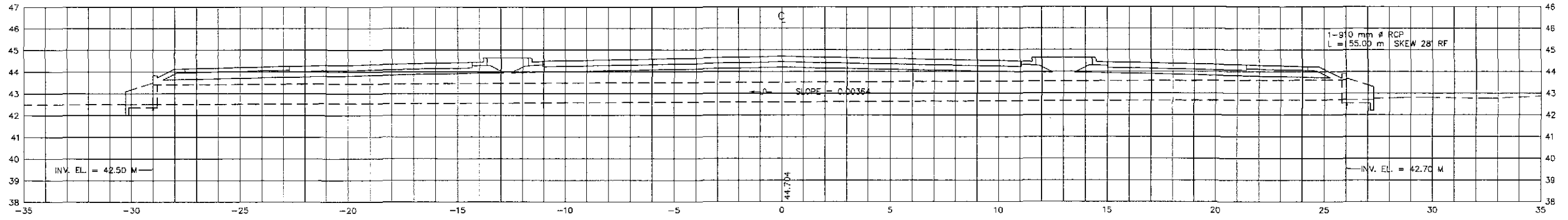


|  |  |                |   |   |   |   |  |  |
|--|--|----------------|---|---|---|---|--|--|
|  |  |                | REPUBLIC OF THE PHILIPPINES<br><b>DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS</b> | PROJECT AND LOCATION :<br><b>THE DETAILED DESIGN STUDY ON<br/>         UPGRADING INTER-URBAN HIGHWAY SYSTEM<br/>         ALONG THE PAN-PHILIPPINE HIGHWAY<br/>         (Plaridel, Cabanatuan and San Jose Bypasses)</b> | SCALE :<br>1:100<br>FULL SIZE A1  | SHEET CONTENTS :<br><b>DRAINAGE CROSS-SECTION<br/>         ALONG BYPASS ( ULTIMATE STAGE )<br/>         STA. 128+394 - STA. 128+784</b> | SHEET NO. :<br><b>DC-11</b>  |  |
|  | DESIGNED: 10/17/02<br>CHECKED: 10/19/02<br>SUBMITTED: 10/21/02 | SIGNATURE:<br> | PUNJ - PMD<br>Submitted By:<br>DANILLO C. TRAJANO<br>Project Director         | BUREAU OF DESIGN<br>Reviewed By:<br>JOSEFINA M. ALAGAR<br>Chief, Highways Division  | OFFICE OF THE SECRETARY<br>Recommended By:<br>GILBERTO S. REYES<br>OIC, Director IV | Approved By:<br>(See cover sheet for<br>Signature/Approval)<br>MANUEL M. BONDAN<br>Undersecretary                                       | Approved By:<br>(See cover sheet for<br>Signature/Approval)<br>SIMEON A. DATUMANONG<br>Secretary |  |
|  | <b>CABANATUAN BYPASS - CONTRACT PACKAGE IV</b>                 |                |   |   |   |   |  |  |

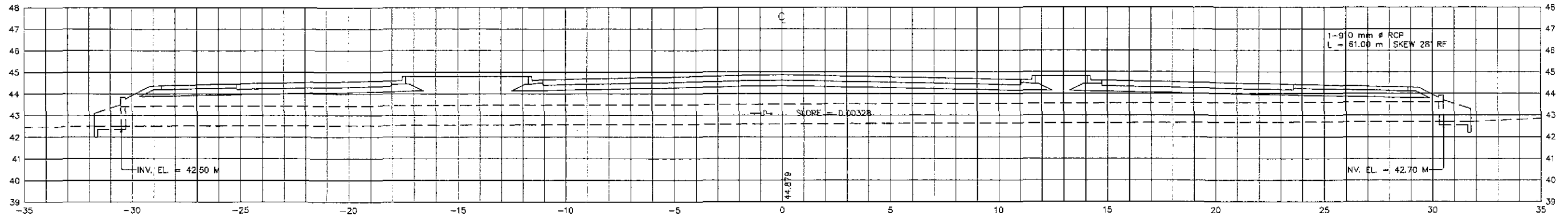


|  |           |          |                    |                  |  |                 |              |  |         |   |              |
|--|-----------|----------|--------------------|------------------|--|-----------------|--------------|--|---------|---|--------------|
|  | DESIGNED  | DATE     | SIGNATURE          |                  | REPUBLIC OF THE PHILIPPINES<br>DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS |                 |              | PROJECT AND LOCATION :   | SCALE : | SHEET CONTENTS :  | SHEET NO. :  |
|  | CHECKED   | 10/17/02 | <i>[Signature]</i> | BUREAU OF DESIGN | OFFICE OF THE SECRETARY  |                 |              | <b>THE DETAILED DESIGN STUDY ON<br/>UPGRADING INTER-URBAN HIGHWAY SYSTEM<br/>ALONG THE PAN-PHILIPPINE HIGHWAY<br/>(Plaridel, Cabanatuan and San Jose Bypasses)</b> | 1:100   | <b>DRAINAGE CROSS-SECTION<br/>ALONG BYPASS ( ULTIMATE STAGE )<br/>STA. 129+110 - STA. 129+455</b> | <b>DC-12</b> |
|  | SUBMITTED | 10/19/02 | <i>[Signature]</i> | Submitted By:    | Reviewed By:   | Recommended By: | Approved By: |  |         |   |              |

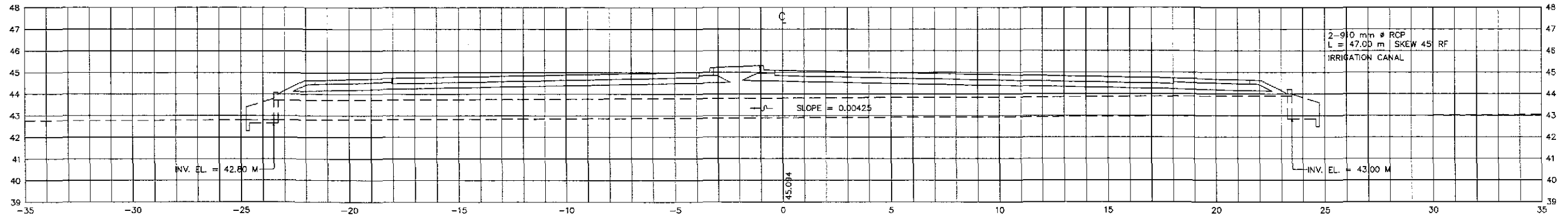
129+940



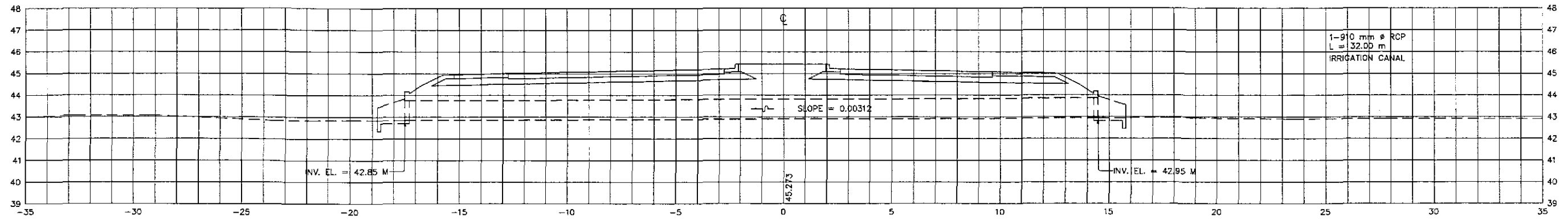
129+905



129+862



129+789



**JICA**  
**JAPAN INTERNATIONAL COOPERATION AGENCY**

**KATAHIRA & ENGINEERS**  
**INTERNATIONAL**

**YEC** **YACHIYO ENGINEERING**  
**CO., LTD.**

|           |          |                    |                                       |  |                                       |                                    |                                   |  |
|-----------|----------|--------------------|---------------------------------------|--|---------------------------------------|------------------------------------|-----------------------------------|--|
| DESIGNED  | 10/17/02 | <i>[Signature]</i> | P.J.H.L. - PMO                        |  | BUREAU OF DESIGN                      |                                    | OFFICE OF THE SECRETARY           |  |
| CHECKED   | 10/19/02 | <i>[Signature]</i> | Submitted By:                         | Reviewed By:                                   | Recommended By:                       | Approved By:                       |                                   |  |
| SUBMITTED | 10/21/02 | <i>[Signature]</i> | DANILO C. TRAJANO<br>Project Director | JOSEFINA M. ALAGAR<br>Chief, Highways Division | GILBERTO S. REYES<br>OIC, Director IV | MANUEL M. BONDAN<br>Undersecretary | SIMEON A. DATUMANONG<br>Secretary |  |

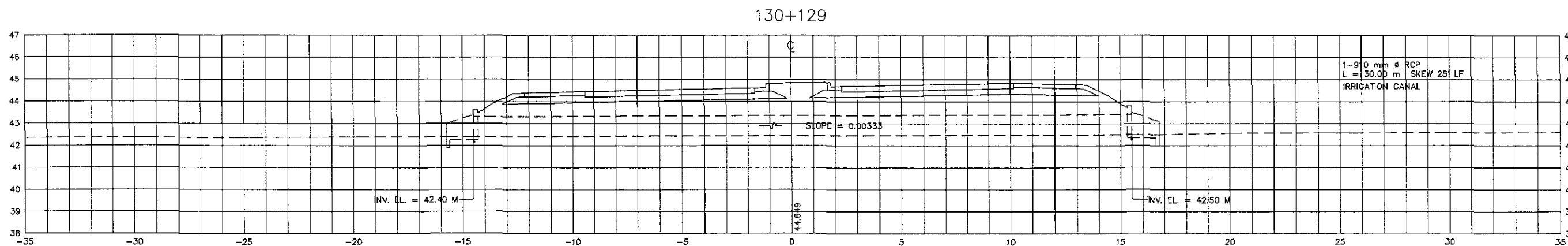
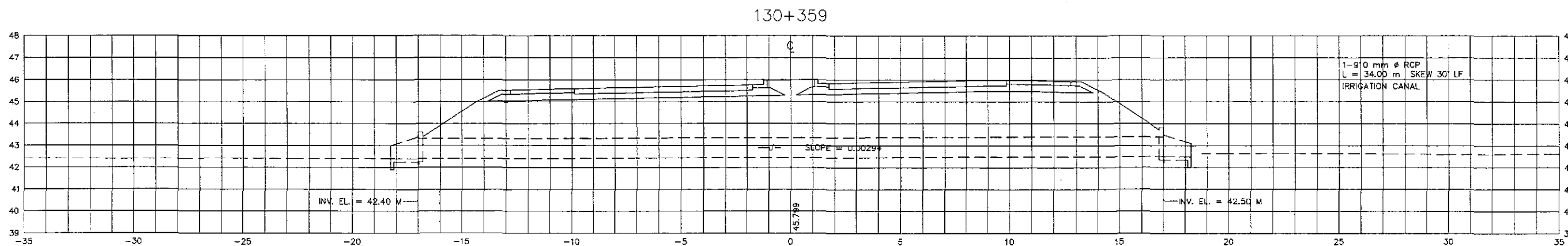
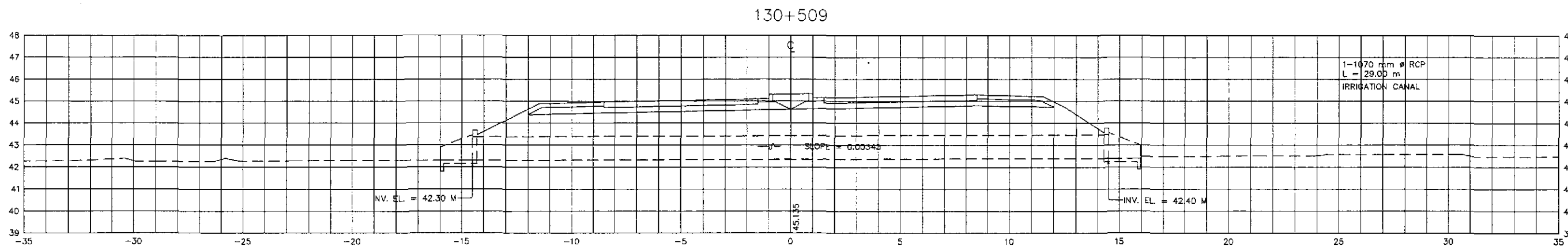
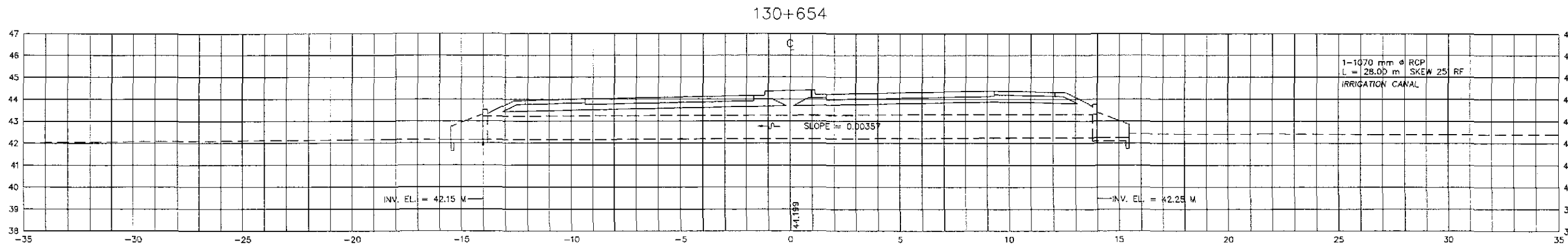
REPUBLIC OF THE PHILIPPINES  
**DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS**

PROJECT AND LOCATION :  
**THE DETAILED DESIGN STUDY ON  
 UPGRADING INTER-URBAN HIGHWAY SYSTEM  
 ALONG THE PAN-PHILIPPINE HIGHWAY  
 (Plaridel, Cabanatuan and San Jose Bypasses)**  
**CABANATUAN BYPASS - CONTRACT PACKAGE IV**

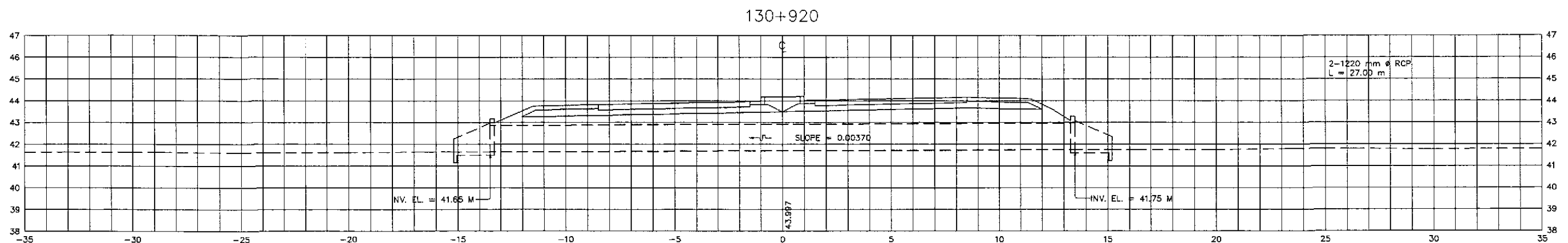
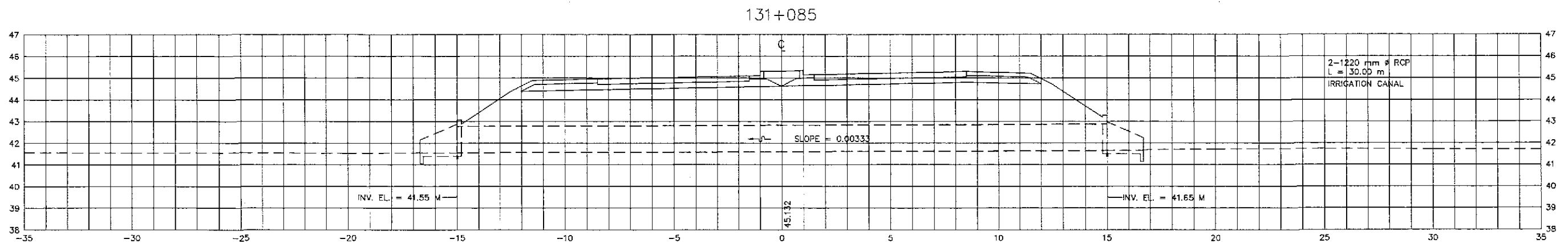
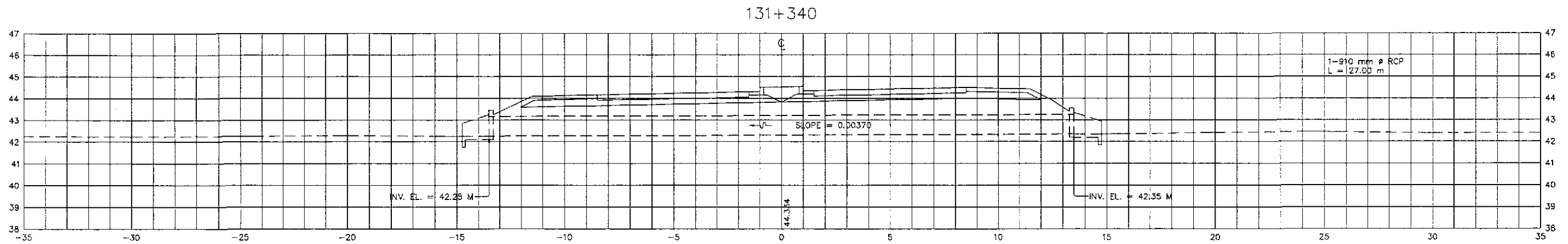
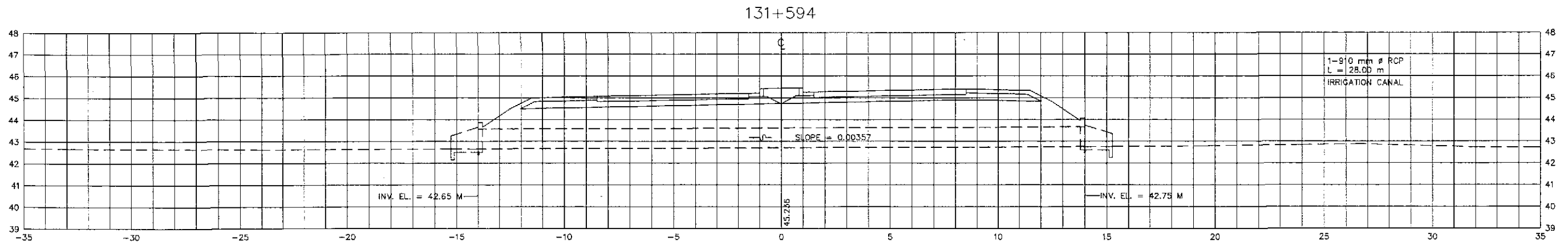
SCALE :  
 1:100  
 FULL SIZE A1

SHEET CONTENTS :  
**DRAINAGE CROSS-SECTION  
 ALONG BYPASS ( ULTIMATE STAGE )  
 STA. 129+789 - STA. 129+940**

SHEET NO. :  
**DC-13**

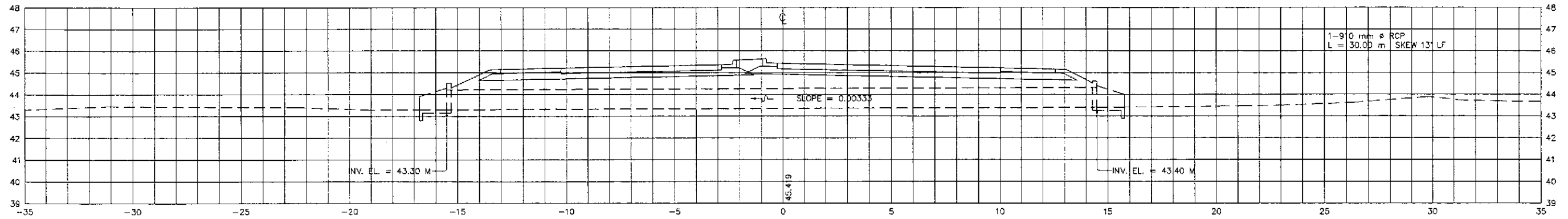


|           |          |          |             |  |                          |   |   |  |             |
|-----------|----------|----------|-------------|--|--------------------------|---|---|--|-------------|
|           |          | DATE     | SIGNATURE   | REPUBLIC OF THE PHILIPPINES<br>DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS |                          | PROJECT AND LOCATION :  | SCALE :                                 | SHEET CONTENTS :   | SHEET NO. : |
|           | DESIGNED | 10/17/02 |             | BUREAU OF DESIGN   | OFFICE OF THE SECRETARY  | THE DETAILED DESIGN STUDY ON<br>UPGRADING INTER-URBAN HIGHWAY SYSTEM<br>ALONG THE PAN-PHILIPPINE HIGHWAY<br>(Pirafel, Cabanatuan and San Jose Bypasses) | 1:100                                   | DRAINAGE CROSS-SECTION<br>ALONG BYPASS ( ULTIMATE STAGE )<br>STA. 130+129 - STA. 130+654 | DC-14       |
|           | CHECKED  | 10/19/02 |             | Submitted By:  | Reviewed By:             | Recommended By:   | CABANATUAN BYPASS - CONTRACT PACKAGE IV | FULL SIZE A1   |             |
| SUBMITTED | 10/21/02 |          | TEAM LEADER | Project Director   | Chief, Highways Division | GILBERTO S. REYES<br>CIC, Director IV   |   |  |             |

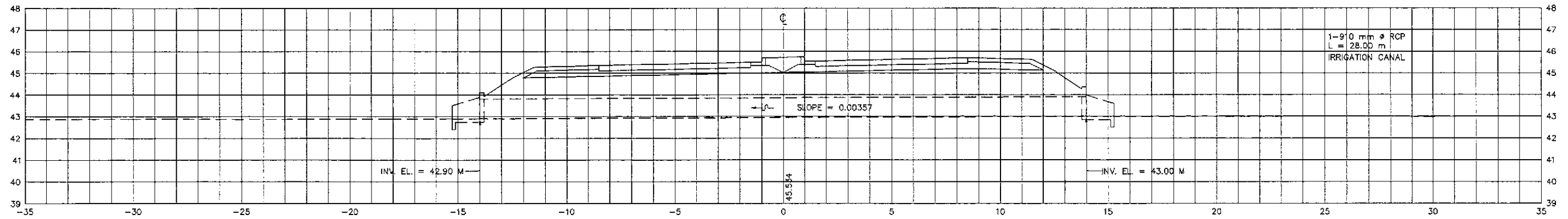


|  |  |                |   |   |   |   |                             |  |
|--|--|----------------|---|---|---|---|-----------------------------|--|
|  |  |                | REPUBLIC OF THE PHILIPPINES<br><b>DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS</b> | PROJECT AND LOCATION :<br><b>THE DETAILED DESIGN STUDY ON<br/>         UPGRADING INTER-URBAN HIGHWAY SYSTEM<br/>         ALONG THE PAN-PHILIPPINE HIGHWAY<br/>         (Plaridel, Cabanatuan and San Jose Bypasses)</b> | SCALE :<br>1:100<br>FULL SIZE A1                                | SHEET CONTENTS :<br><b>DRAINAGE CROSS-SECTION<br/>         ALONG BYPASS ( ULTIMATE STAGE )<br/>         STA. 130+920 - STA. 131+594</b> | SHEET NO. :<br><b>DC-15</b> |  |
|  | DESIGNED: 10/17/02<br>CHECKED: 10/19/02<br>SUBMITTED: 10/21/02 | SIGNATURE:<br> | Submitted By:<br><b>DANILO C. TRAJANO</b><br>Project Director                 | Reviewed By:<br><b>JOSEFINA M. ALAGAR</b><br>Chief, Highways Division   | Recommended By:<br><b>GILBERTO S. REYES</b><br>D/C, Director IV | Approved By:<br><b>MANUEL M. BONOAN</b><br>Undersecretary   |                             |  |
|  | BUREAU OF DESIGN<br>OFFICE OF THE SECRETARY                    |                |   | Approved By:<br><b>SIMEON A. DATUMANONG</b><br>Secretary  |   |   |                             |  |

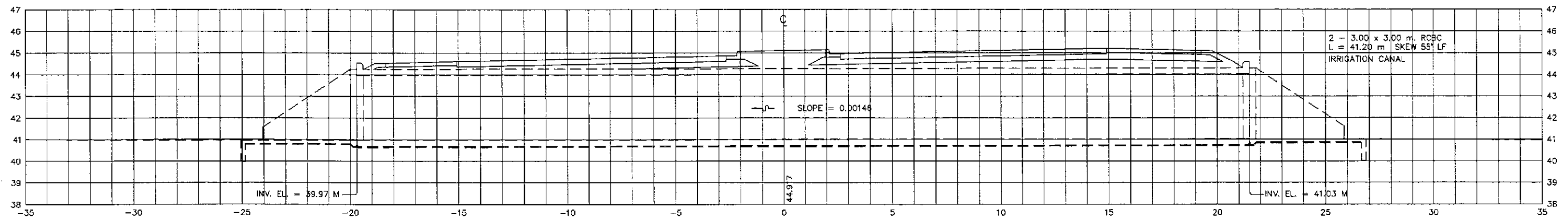
132+115



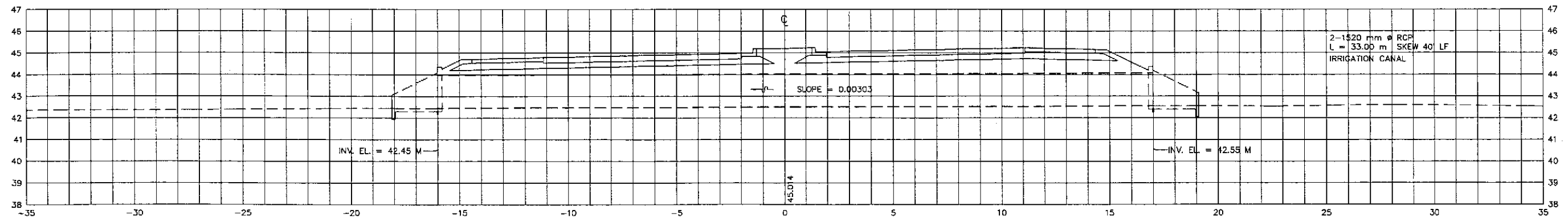
131+904



131+734



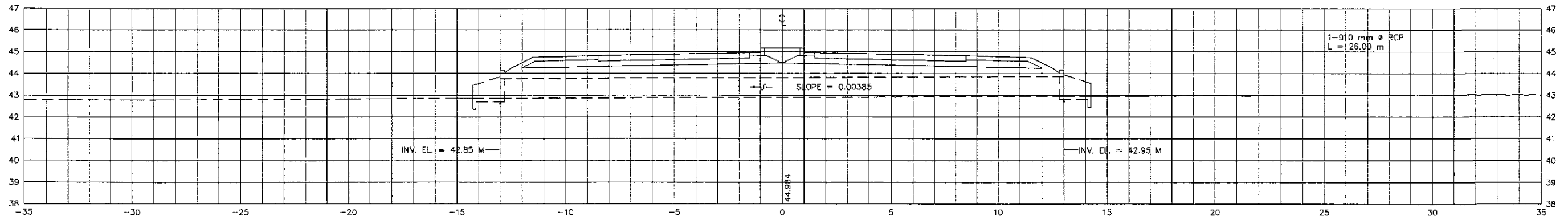
131+644



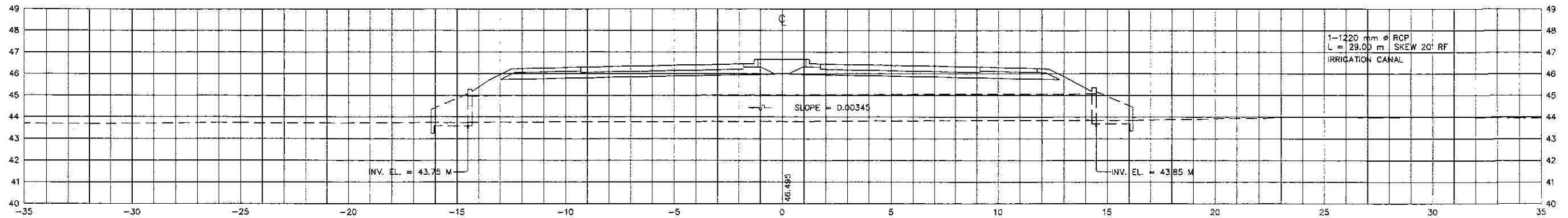
|  |   |  |  |  |  |   |  |   |                                  |  |  |                      |
|--|---|--|--|--|--|---|--|---|----------------------------------|--|--|----------------------|
|  | DATE: 10/17/02<br>DESIGNED: [Signature]<br>CHECKED: 10/19/02<br>SUBMITTED: 10/21/02                                       | SIGNATURE: [Signature]<br>STA. 131+644<br>STA. 132+115<br>TEAM LEADER: [Signature] | PUJL - PMO<br>DANILLO C. TRAJANO<br>Project Director | BUREAU OF DESIGN<br>JOSEFINA M. ALAGAR<br>Chief, Highways Division | OFFICE OF THE SECRETARY<br>GILBERTO S. REYES<br>OIC, Director IV | OFFICE OF THE SECRETARY<br>MANUEL M. BONGAN<br>Undersecretary | OFFICE OF THE SECRETARY<br>SIMEON A. DATUMANONG<br>Secretary | PROJECT AND LOCATION :<br>THE DETAILED DESIGN STUDY ON<br>UPGRADING INTER-URBAN HIGHWAY SYSTEM<br>ALONG THE PAN-PHILIPPINE HIGHWAY<br>(Plaridel, Cabanatuan and San Jose Bypasses)<br>CABANATUAN BYPASS - CONTRACT PACKAGE IV | SCALE :<br>1:100<br>FULL SIZE A1 | SHEET CONTENTS :<br>DRAINAGE CROSS-SECTION<br>ALONG BYPASS ( ULTIMATE STAGE )<br>STA. 131+644 - STA. 132+115 | SHEET NO. :<br>DC-16   |                      |
|  | REPUBLIC OF THE PHILIPPINES<br>DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS  |  |  |  |  |   |  | PROJECT AND LOCATION :<br>THE DETAILED DESIGN STUDY ON<br>UPGRADING INTER-URBAN HIGHWAY SYSTEM<br>ALONG THE PAN-PHILIPPINE HIGHWAY<br>(Plaridel, Cabanatuan and San Jose Bypasses)<br>CABANATUAN BYPASS - CONTRACT PACKAGE IV |                                  | SCALE :<br>1:100<br>FULL SIZE A1   | SHEET CONTENTS :<br>DRAINAGE CROSS-SECTION<br>ALONG BYPASS ( ULTIMATE STAGE )<br>STA. 131+644 - STA. 132+115 | SHEET NO. :<br>DC-16 |
|  | JICA<br>JAPAN INTERNATIONAL COOPERATION AGENCY<br>KATAHIRA & ENGINEERS INTERNATIONAL<br>YEC YACHIYO ENGINEERING CO., LTD. |  |  |  |  |   |  | PROJECT AND LOCATION :<br>THE DETAILED DESIGN STUDY ON<br>UPGRADING INTER-URBAN HIGHWAY SYSTEM<br>ALONG THE PAN-PHILIPPINE HIGHWAY<br>(Plaridel, Cabanatuan and San Jose Bypasses)<br>CABANATUAN BYPASS - CONTRACT PACKAGE IV |                                  | SCALE :<br>1:100<br>FULL SIZE A1   | SHEET CONTENTS :<br>DRAINAGE CROSS-SECTION<br>ALONG BYPASS ( ULTIMATE STAGE )<br>STA. 131+644 - STA. 132+115 | SHEET NO. :<br>DC-16 |



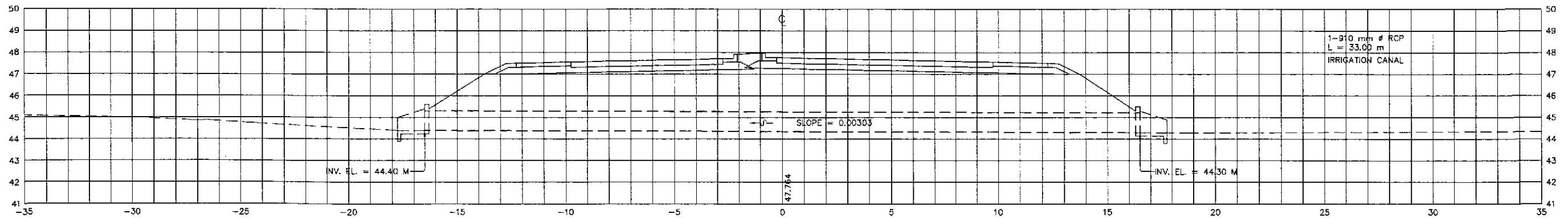
133+620



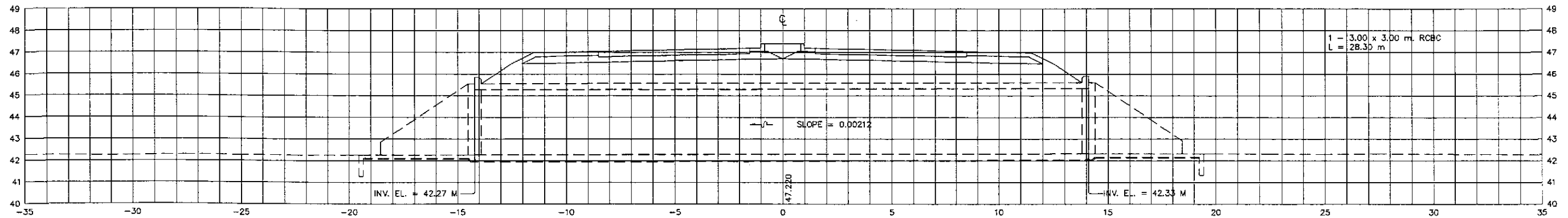
133+254



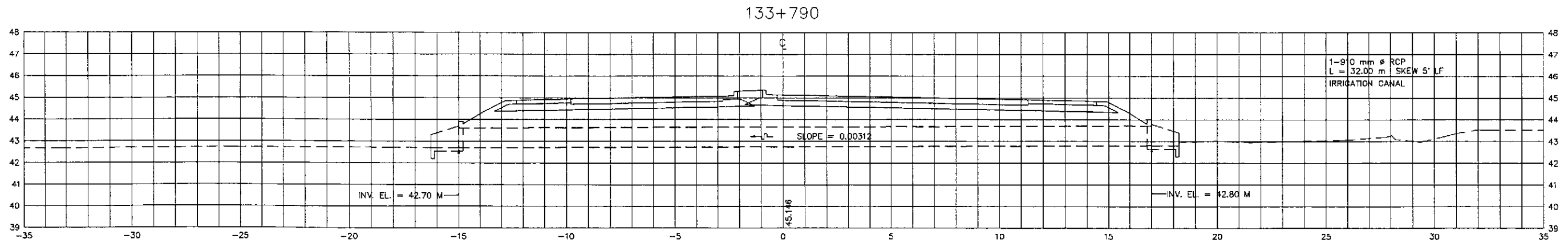
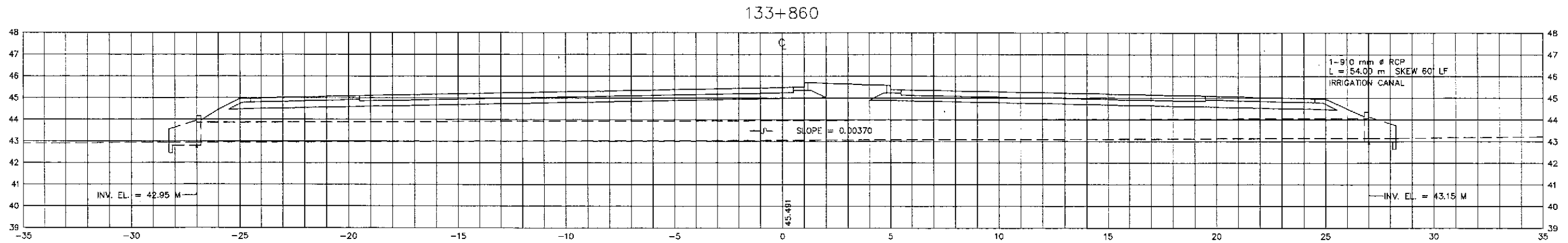
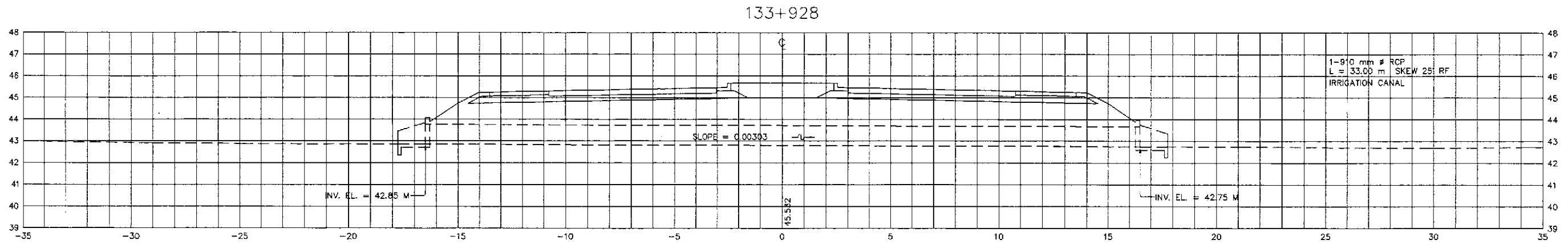
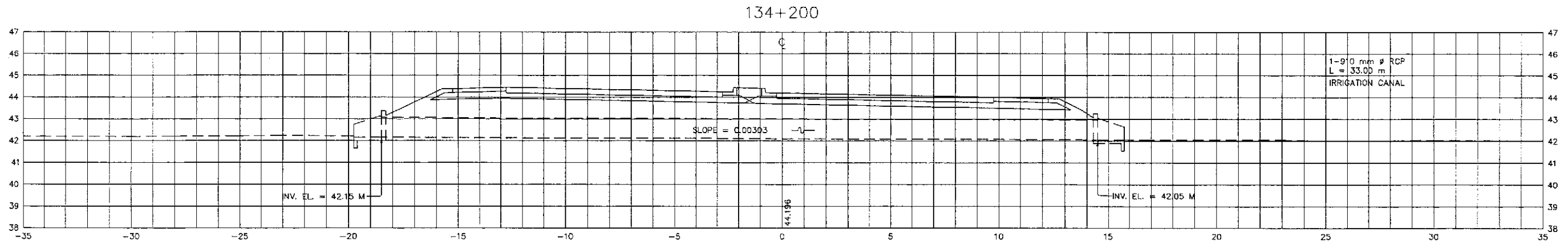
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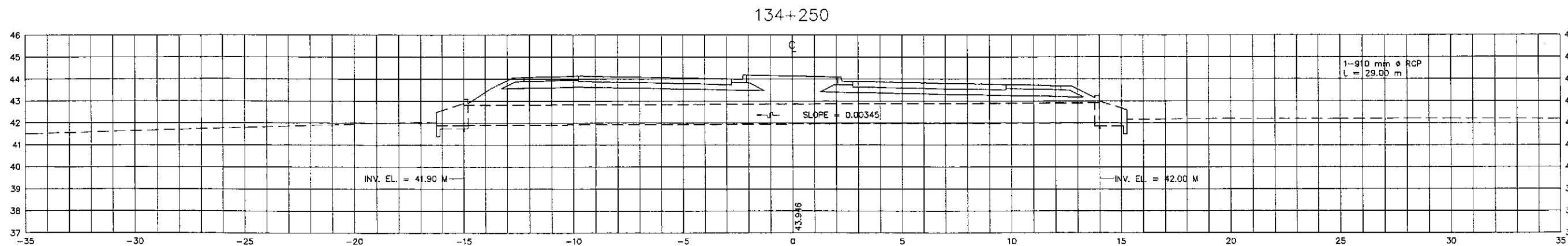
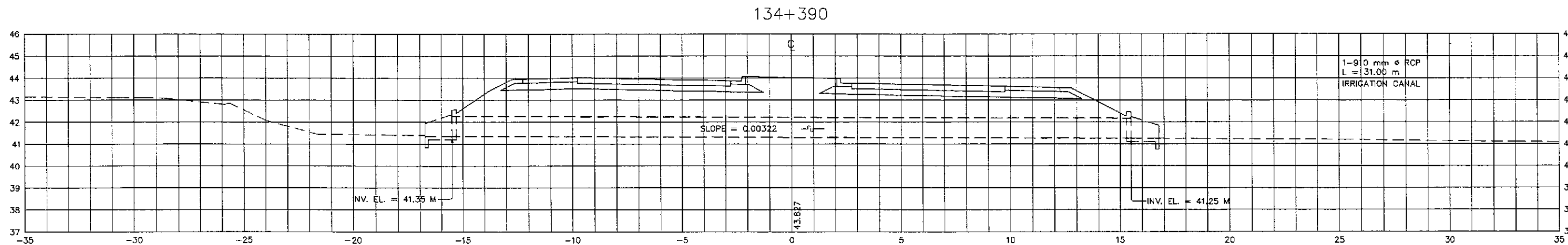
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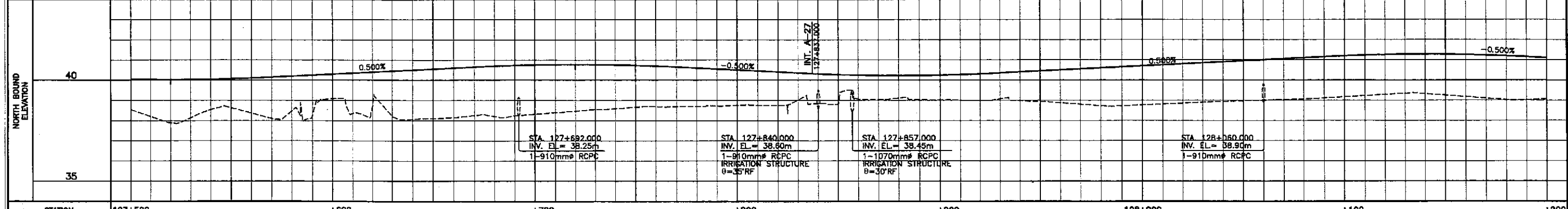
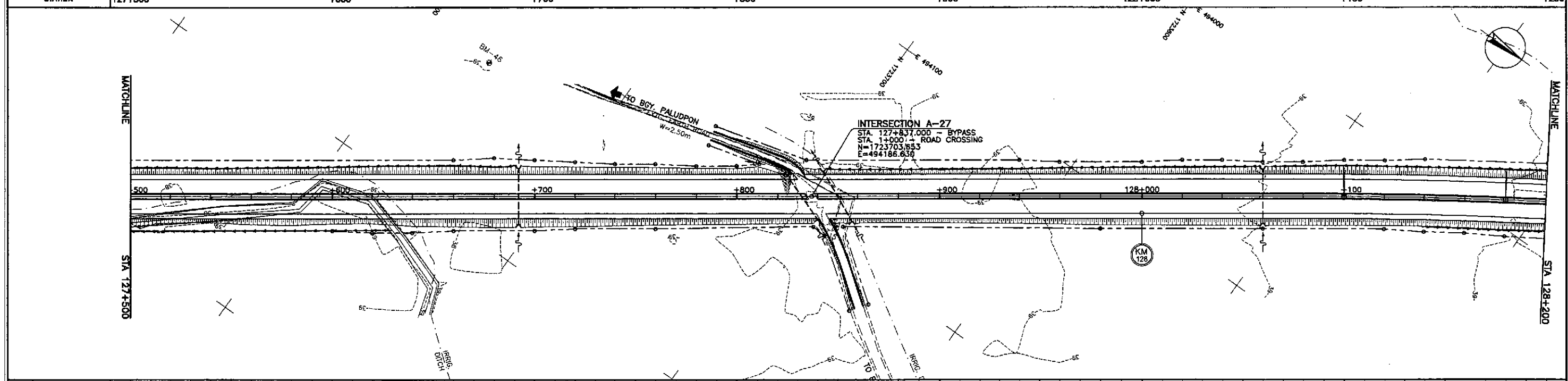
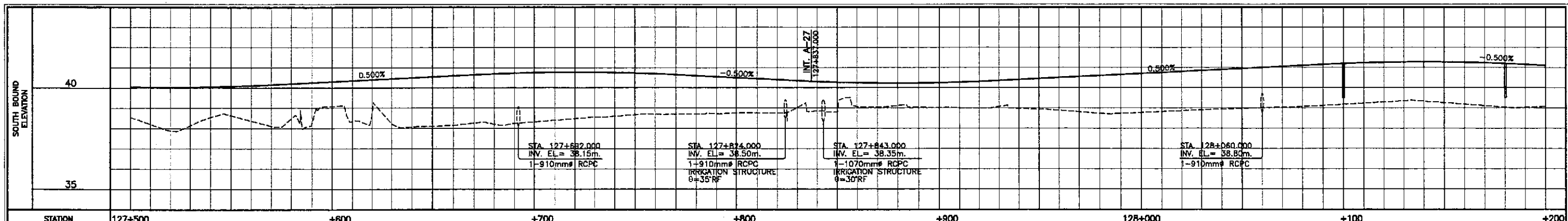
|  |           |          |                                       |  |  |                                    |                                   |   |                                  |  |                             |
|--|-----------|----------|---------------------------------------|--|--|------------------------------------|-----------------------------------|---|----------------------------------|--|-----------------------------|
|  | DESIGNED  | 10/17/01 |                                       |  | REPUBLIC OF THE PHILIPPINES<br>DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS |                                    |                                   | PROJECT AND LOCATION :<br><b>THE DETAILED DESIGN STUDY ON<br/>UPGRADING INTER-URBAN HIGHWAY SYSTEM<br/>ALONG THE PAN-PHILIPPINE HIGHWAY<br/>(Plaridel, Cabanatuan and San Jose Bypasses)</b><br>CABANATUAN BYPASS - CONTRACT PACKAGE IV | SCALE :<br>1:100<br>FULL SIZE A1 | SHEET CONTENTS :<br><b>DRAINAGE CROSS-SECTION<br/>ALONG BYPASS ( ULTIMATE STAGE )</b><br>STA. 132+460 - STA. 133+620 | SHEET NO. :<br><b>DC-17</b> |
|  | CHECKED   | 10/19/02 |                                       |  | BUREAU OF DESIGN   |                                    |                                   |   |                                  |  |                             |
|  | SUBMITTED | 10/21/01 |                                       |  | Submitted By:  | Reviewed By:                       | Recommended By:                   |   |                                  |  |                             |
|  |           |          | DANILO C. TRAJANO<br>Project Director | JOSEFINA M. ALAGAR<br>Chief, Highways Division | GILBERTO S. REYES<br>OIC, Director IV                                  | MANUEL M. BONDAN<br>Undersecretary | SIMEON A. DATUMANONG<br>Secretary |   |                                  |  |                             |



|  |  |   |   |   |   |   |                             |
|--|--|---|---|---|---|---|-----------------------------|
|  |  |   | REPUBLIC OF THE PHILIPPINES<br><b>DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS</b> | PROJECT AND LOCATION :<br><b>THE DETAILED DESIGN STUDY ON<br/>         UPGRADING INTER-URBAN HIGHWAY SYSTEM<br/>         ALONG THE PAN-PHILIPPINE HIGHWAY<br/>         (Plaridel, Cabanatuan and San Jose Bypasses)</b> | SCALE :<br>1:100<br>FULL SIZE A1        | SHEET CONTENTS :<br><b>DRAINAGE CROSS-SECTION<br/>         ALONG BYPASS ( ULTIMATE STAGE )<br/>         STA. 133+790 - STA. 134+200</b> | SHEET NO. :<br><b>DC-18</b> |
|  | DESIGNED <i>10/17/02</i><br>CHECKED <i>10/19/02</i><br>SUBMITTED <i>10/21/02</i> | SIGNATURE<br><i>[Signature]</i><br>P.J.H.L. - P.M.O.<br>Submitted By: | BUREAU OF DESIGN<br>Reviewed By:  | OFFICE OF THE SECRETARY<br>Recommended By:<br>Approved By:  | CABANATUAN BYPASS - CONTRACT PACKAGE IV |   |                             |
|  |  | DANILLO C. TRAJANO<br>Project Director                                | JOSEFINA M. ALAGAR<br>Chief, Highways Division                                | GILBERTO S. REYES<br>OIC, Director IV   | MANUEL M. BONOAN<br>Undersecretary      |   |                             |



|  |  |  |   |   |   |  |   |  |  |
|--|--|--|---|---|---|--|---|--|--|
|  |  |  |   | REPUBLIC OF THE PHILIPPINES<br><b>DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS</b> | PROJECT AND LOCATION :<br><b>THE DETAILED DESIGN STUDY ON<br/>         UPGRADING INTER-URBAN HIGHWAY SYSTEM<br/>         ALONG THE PAN-PHILIPPINE HIGHWAY<br/>         (Plaridel, Cabanatuan and San Jose Bypasses)</b> | SCALE :<br>1:100<br>FULL SIZE A1                   | SHEET CONTENTS :<br><b>DRAINAGE CROSS-SECTION<br/>         ALONG BYPASS ( ULTIMATE STAGE )<br/>         STA. 134+250 - STA. 134+390</b> | SHEET NO. :<br><b>DC-19</b>                    |  |
|  | DESIGNED <i>[Signature]</i><br>10/17/07        | CHECKED <i>[Signature]</i><br>10/19/07 | SUBMITTED <i>[Signature]</i><br>10/21/07                                | BUREAU OF DESIGN<br>Submitted By: DANILLO C. TRAJANO<br>Project Director      | OFFICE OF THE SECRETARY<br>Recommended By: JOSEFINA M. ALAGAR<br>Chief, Highways Division   | Approved By: GILBERTO S. REYES<br>OIC, Director IV | Approved By: MANUEL M. BONDAN<br>Undersecretary   | Approved By: SIMEON A. DATUMANONG<br>Secretary |  |
|  | JICA<br>JAPAN INTERNATIONAL COOPERATION AGENCY |  | KATAHIRA & ENGINEERS INTERNATIONAL<br>YEO YACHIYO ENGINEERING CO., LTD. |   | CABANATUAN BYPASS - CONTRACT PACKAGE IV   |  |   |  |  |



| STATION                                | 127+500 | +600   |        |        |        |        |        |        |        |        |        | +700   |        |        |        |        |        |        |        |        |        | +800   |        |        |        |        |        |        |        |        |        | +900   |        |        |        |        |  |  |  |  |  | 128+000 |  |  |  |  |  |  |  |  |  | +100 |  |  |  |  |  |  |  |  |  | 128+200 |
|--|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--|--|--|--|--|---------|--|--|--|--|--|--|--|--|--|------|--|--|--|--|--|--|--|--|--|---------|
| FINISHED GRADE                         | 40.000  | 40.023 | 40.049 | 40.109 | 40.204 | 40.304 | 40.404 | 40.504 | 40.604 | 40.699 | 40.799 | 40.779 | 40.799 | 40.699 | 40.604 | 40.504 | 40.404 | 40.309 | 40.249 | 40.229 | 40.249 | 40.309 | 40.404 | 40.504 | 40.604 | 40.704 | 40.804 | 40.904 | 41.004 | 41.104 | 41.199 | 41.259 | 41.279 | 41.259 | 41.199 | 41.114 |  |  |  |  |  |         |  |  |  |  |  |  |  |  |  |      |  |  |  |  |  |  |  |  |  |         |
| TOP LEVEL OF CIM (MC)                  |         |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |  |  |  |  |  |         |  |  |  |  |  |  |  |  |  |      |  |  |  |  |  |  |  |  |  |         |
| INVERT LEVEL OF CROSS PIPE (MC)        |         |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |  |  |  |  |  |         |  |  |  |  |  |  |  |  |  |      |  |  |  |  |  |  |  |  |  |         |
| TOP LEVEL OF CIM (FR)                  |         |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |  |  |  |  |  |         |  |  |  |  |  |  |  |  |  |      |  |  |  |  |  |  |  |  |  |         |
| INVERT LEVEL OF CROSS PIPE (FR)        |         |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |  |  |  |  |  |         |  |  |  |  |  |  |  |  |  |      |  |  |  |  |  |  |  |  |  |         |
| INVERT LEVEL OF LONGITUDINAL PIPE (SB) |         |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |  |  |  |  |  |         |  |  |  |  |  |  |  |  |  |      |  |  |  |  |  |  |  |  |  |         |
| INVERT LEVEL OF LONGITUDINAL PIPE (NB) |         |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |  |  |  |  |  |         |  |  |  |  |  |  |  |  |  |      |  |  |  |  |  |  |  |  |  |         |

REPUBLIC OF THE PHILIPPINES  
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

BUREAU OF DESIGN

Submitted By: DANILO C. TRAJANO, Project Director

Reviewed By: JOSEFINA M. ALAGAR, Chief, Highways Division

Recommended By: GILBERTO S. REYES, OIC, Director IV

Office of the Secretary

Recommended By: MANUEL M. BONGAN, Undersecretary

Approved By: SIMEON A. DATUMANONG, Secretary

PROJECT AND LOCATION :

THE DETAILED DESIGN STUDY ON  
UPGRADING INTER-URBAN HIGHWAY SYSTEM  
ALONG THE PAN-PHILIPPINE HIGHWAY  
(Plaridel, Cabanatuan and San Jose Bypasses)

CABANATUAN BYPASS - CONTRACT PACKAGE IV

SCALE :

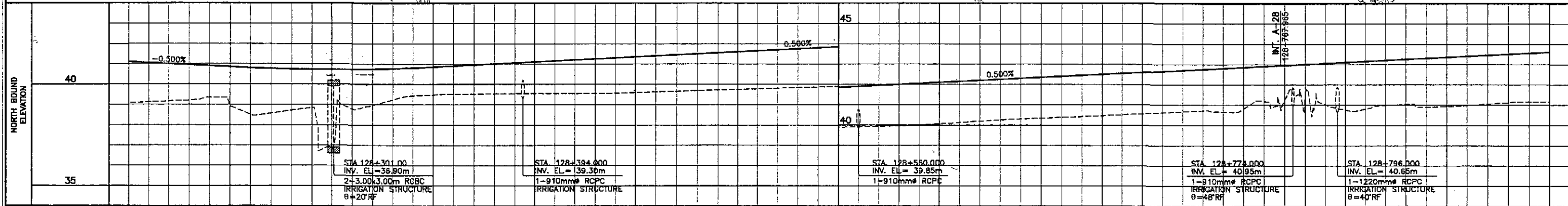
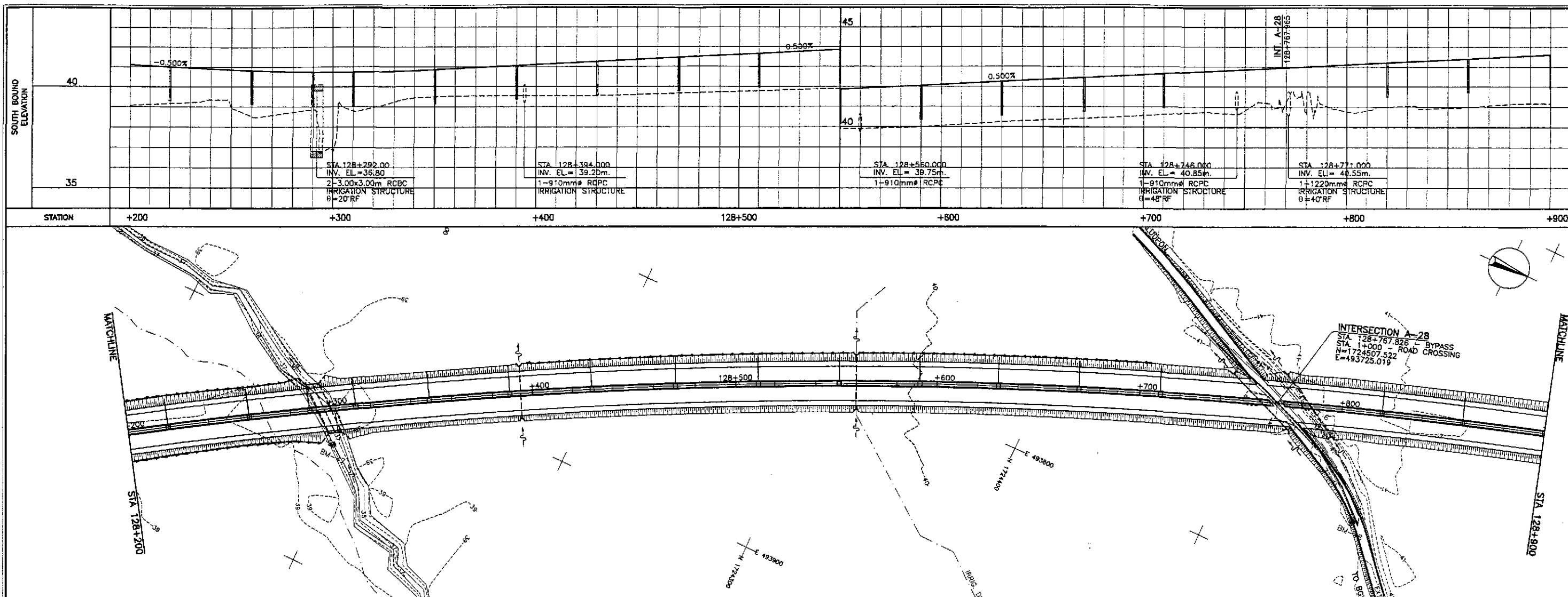
HORIZONTAL 1:1000  
VERTICAL 1:100  
FULL SIZE A1

SHEET CONTENTS :

**SURFACE DRAINAGE  
PLAN AND PROFILE**  
ALONG BYPASS (ULTIMATE STAGE)  
STA. 127+500 - STA. 128+200

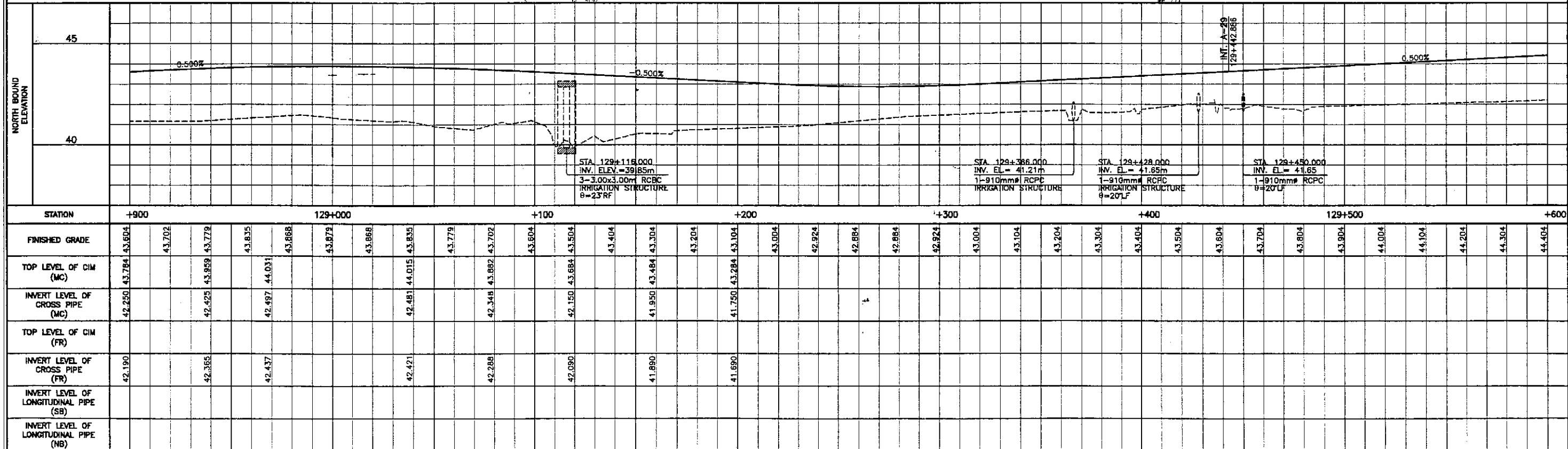
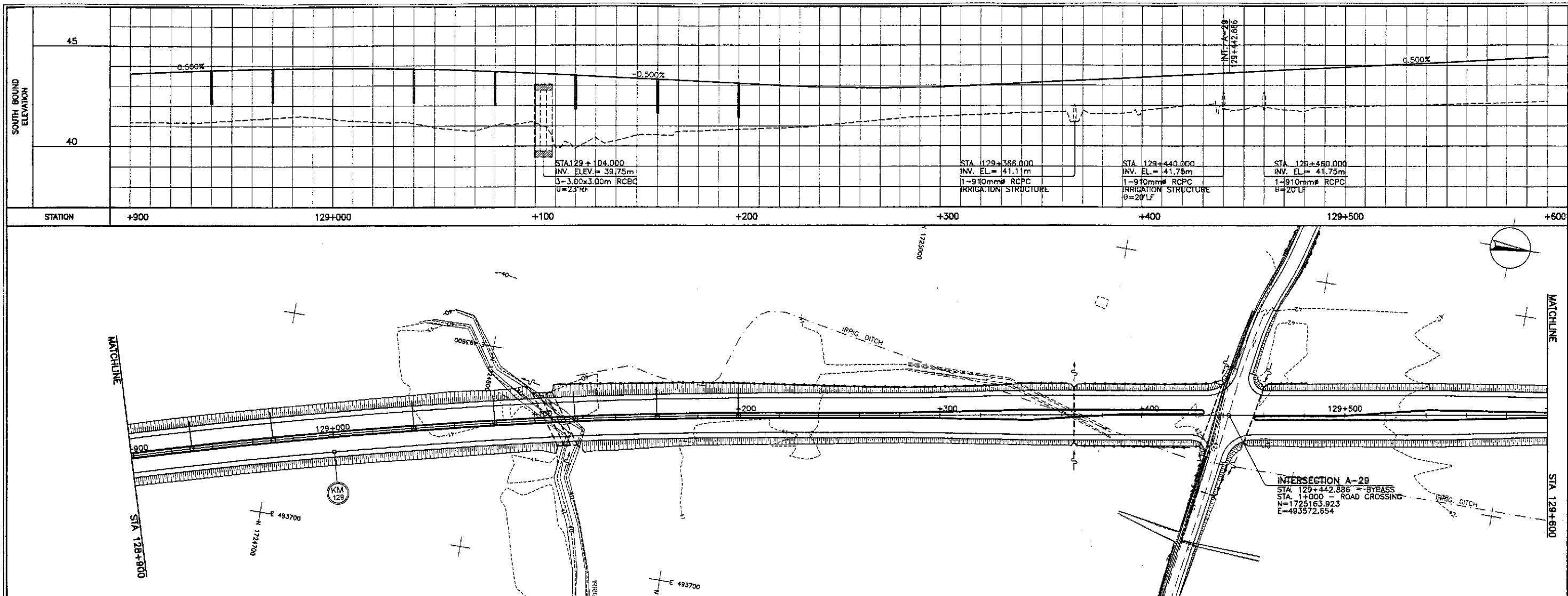
SHEET NO. :

**DP-01**



| STATION                                | +200   | +300   | +400   | 128+500 | +600   | +700   | +800   | +900   |
|--|--------|--------|--------|---------|--------|--------|--------|--------|
| FINISHED GRADE                         | 41.104 | 41.004 | 40.904 | 40.809  | 40.749 | 40.729 | 40.749 | 40.809 |
| TOP LEVEL OF CIM (MC)                  |        | 39.650 | 41.184 | 41.004  | 40.904 | 40.809 | 40.749 | 40.809 |
| INVERT LEVEL OF CROSS PIPE (MC)        |        | 39.650 | 40.989 | 41.234  | 41.036 | 40.919 | 40.809 | 40.749 |
| TOP LEVEL OF CIM (FR)                  |        | 39.590 | 41.184 | 41.004  | 40.904 | 40.809 | 40.749 | 40.809 |
| INVERT LEVEL OF CROSS PIPE (FR)        |        | 39.590 | 40.989 | 41.234  | 41.036 | 40.919 | 40.809 | 40.749 |
| INVERT LEVEL OF LONGITUDINAL PIPE (SB) |        | 39.590 | 39.325 | 39.325  | 39.442 | 39.640 | 39.840 | 40.040 |
| INVERT LEVEL OF LONGITUDINAL PIPE (NB) |        | 39.590 | 39.325 | 39.325  | 39.442 | 39.640 | 39.840 | 40.040 |

|  |           |          |                    |  |   |   |  |  |   |                             |
|--|-----------|----------|--------------------|--|---|---|--|--|---|-----------------------------|
|  | DESIGNED  | 10/17/02 | <i>[Signature]</i> | REPUBLIC OF THE PHILIPPINES<br>DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS |   |   | PROJECT AND LOCATION :<br>THE DETAILED DESIGN STUDY ON<br>UPGRADING INTER-URBAN HIGHWAY SYSTEM<br>ALONG THE PAN-PHILIPPINE HIGHWAY<br>(Plaridel, Cabanatuan and San Jose Bypasses)<br><b>CABANATUAN BYPASS - CONTRACT PACKAGE IV</b> | SCALE :<br>HORIZONTAL 1:1000<br>VERTICAL 1:100<br>FULL SIZE A1 | SHEET CONTENTS :<br><b>SURFACE DRAINAGE<br/>         PLAN AND PROFILE</b><br>ALONG BYPASS (ULTIMATE STAGE)<br>STA. 128+200 - STA. 128+900 | SHEET NO. :<br><b>DP-02</b> |
|  | CHECKED   | 10/19/02 | <i>[Signature]</i> | BUREAU OF DESIGN<br>OFFICE OF THE SECRETARY                            |   |   |  |  |   |                             |
|  | SUBMITTED | 10/21/02 | <i>[Signature]</i> | Submitted By:<br><b>DANILO C. TRAJANO</b><br>Project Director          | Reviewed By:<br><b>JOSEFINA M. ALASAR</b><br>Chief, Highways Division | Recommended By:<br><b>GILBERTO S. REYES</b><br>DIC, Director IV |  |  |   |                             |



| STATION                                | +900   | 129+000 | +100   | +200   | +300   | +400   | 129+500 | +600   |
|--|--------|---------|--------|--------|--------|--------|---------|--------|
| FINISHED GRADE                         | 43.604 | 43.702  | 43.835 | 43.868 | 43.879 | 43.868 | 43.835  | 43.779 |
| TOP LEVEL OF CIM (MC)                  | 42.250 | 42.429  | 42.497 | 42.481 | 42.348 | 42.150 | 41.950  | 41.750 |
| INVERT LEVEL OF CROSS PIPE (MC)        |        |         |        |        |        |        |         |        |
| TOP LEVEL OF CIM (FR)                  |        |         |        |        |        |        |         |        |
| INVERT LEVEL OF CROSS PIPE (FR)        | 42.190 | 42.355  | 42.437 | 42.421 | 42.268 | 42.090 | 41.890  | 41.690 |
| INVERT LEVEL OF LONGITUDINAL PIPE (SB) |        |         |        |        |        |        |         |        |
| INVERT LEVEL OF LONGITUDINAL PIPE (NB) |        |         |        |        |        |        |         |        |

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 JAPAN INTERNATIONAL COOPERATION AGENCY  
 KATAHIRA & ENGINEERS INTERNATIONAL  
 YACHIO ENGINEERING CO., LTD.

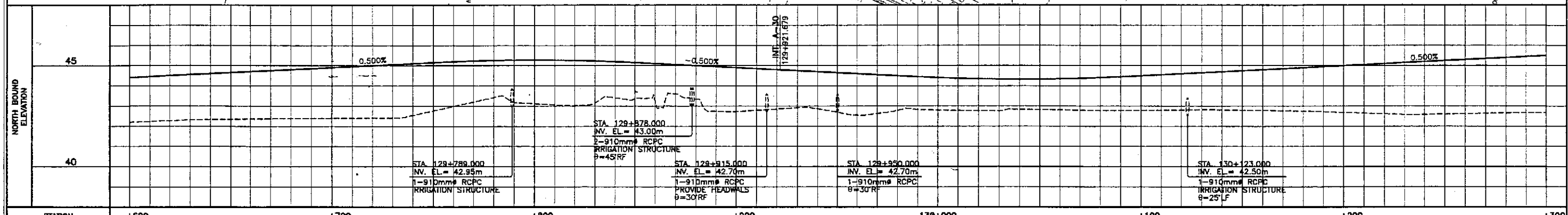
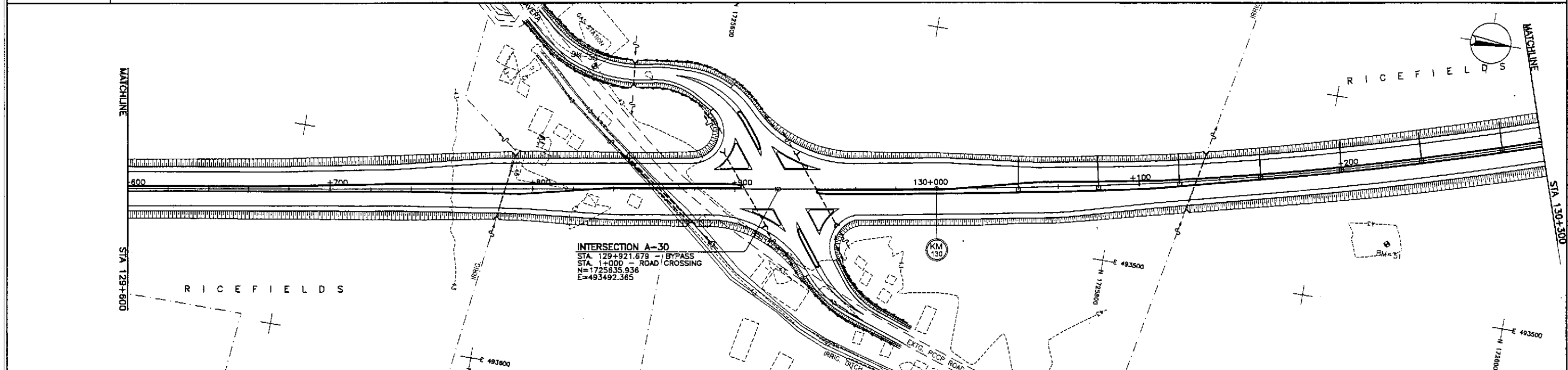
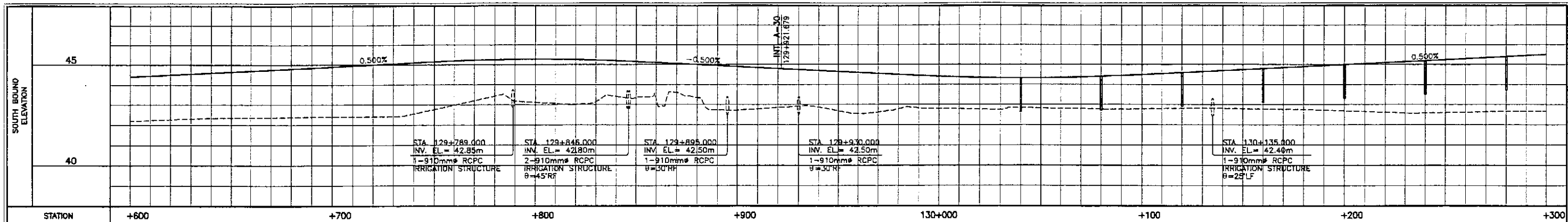
REPUBLIC OF THE PHILIPPINES  
 DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS  
 BUREAU OF DESIGN  
 OFFICE OF THE SECRETARY  
 Submitted By: PUHL - PMO  
 Reviewed By: JOSETINA M. ALAGAR, Chief, Highways Division  
 Recommended By: GILBERTO S. REYES, OIC, Director IV  
 Approved By: MANUEL M. BONDAN, Undersecretary  
 SIMEON A. DATUMANONG, Secretary

PROJECT AND LOCATION :  
 THE DETAILED DESIGN STUDY ON  
 UPGRADING INTER-URBAN HIGHWAY SYSTEM  
 ALONG THE PAN-PHILIPPINE HIGHWAY  
 (Plaridel, Cabanatuan and San Jose Bypasses)  
 CABANATUAN BYPASS - CONTRACT PACKAGE IV

SCALE :  
 HORIZONTAL 1:1000  
 VERTICAL 1:100  
 FULL SIZE A1

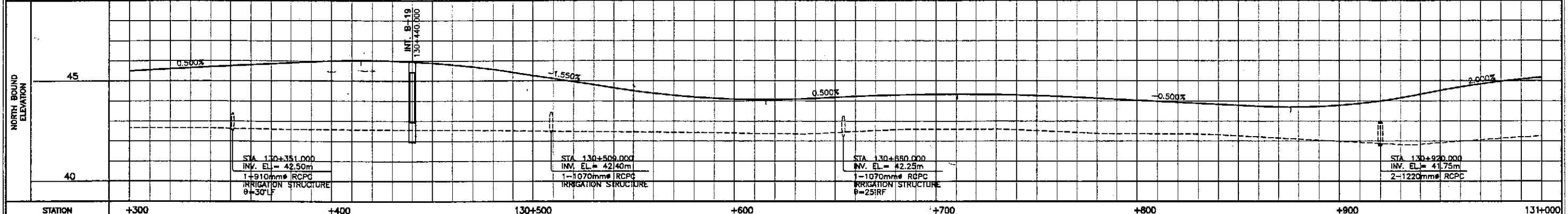
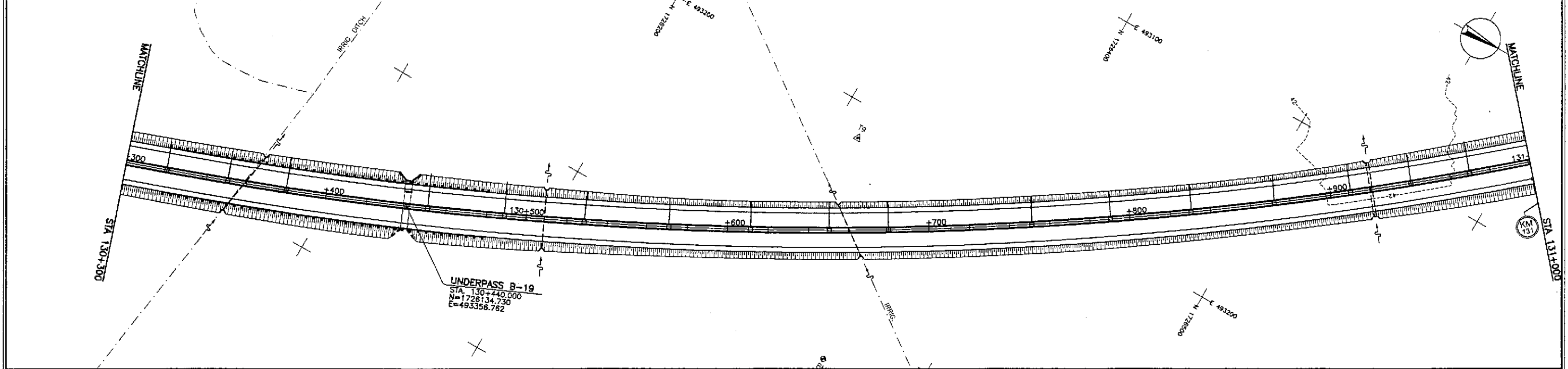
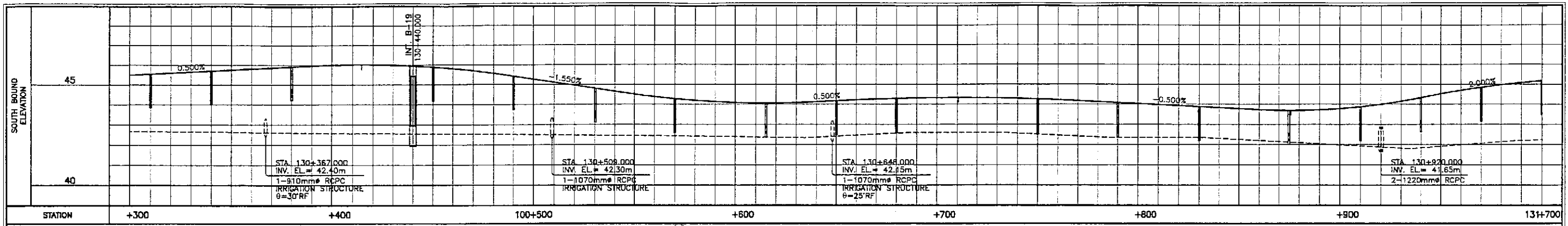
SHEET CONTENTS :  
 SURFACE DRAINAGE  
 PLAN AND PROFILE  
 ALONG BYPASS (ULTIMATE STAGE)  
 STA. 128+900 - STA. 129+600

SHEET NO. :  
 DP-03



| STATION                                | +600   | +700   | +800   | +900   | 130+000 | +100   | +200   | +300   |
|--|--------|--------|--------|--------|---------|--------|--------|--------|
| FINISHED GRADE                         | 44.404 | 44.504 | 44.604 | 44.704 | 44.804  | 44.904 | 45.004 | 45.104 |
| TOP LEVEL OF CIM (MC)                  |        |        |        |        |         |        |        |        |
| INVERT LEVEL OF CROSS PIPE (MC)        |        |        |        |        |         |        |        |        |
| TOP LEVEL OF CIM (FR)                  |        |        |        |        |         |        |        |        |
| INVERT LEVEL OF CROSS PIPE (FR)        |        |        |        |        |         |        |        |        |
| INVERT LEVEL OF LONGITUDINAL PIPE (SB) |        |        |        |        |         |        |        |        |
| INVERT LEVEL OF LONGITUDINAL PIPE (NB) |        |        |        |        |         |        |        |        |

|  |           |          |                    |  |              |                 |              |   |                      |  |             |
|--|-----------|----------|--------------------|--|--------------|-----------------|--------------|---|----------------------|--|-------------|
|  | DESIGNED  | DATE     | SIGNATURE          | REPUBLIC OF THE PHILIPPINES<br>DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS |              |                 |              | PROJECT AND LOCATION :  | SCALE :              | SHEET CONTENTS :   | SHEET NO. : |
|  | CHECKED   | 10/17/02 | <i>[Signature]</i> | BUREAU OF DESIGN   |              |                 |              | THE DETAILED DESIGN STUDY ON<br>UPGRADING INTER-URBAN HIGHWAY SYSTEM<br>ALONG THE PAN-PHILIPPINE HIGHWAY<br>(Paridel, Cabanatuan and San Jose Bypasses) | HORIZONTAL<br>1:1000 | SURFACE DRAINAGE<br>PLAN AND PROFILE<br>ALONG BYPASS (ULTIMATE STAGE)<br>STA. 129+600 - STA. 130+300 | DP-04       |
|  | SUBMITTED | 10/21/02 | <i>[Signature]</i> | Submitted By:  | Reviewed By: | Recommended By: | Approved By: | VERTICAL<br>1:100   | FULL SIZE A1         |  |             |



| STATION                                | +300   | +400   | 130+500 | +600   | +700   | +800   | +900   | 131+000 |
|--|--------|--------|---------|--------|--------|--------|--------|---------|
| FINISHED GRADE                         | 45.504 | 45.604 | 45.704  | 45.804 | 45.904 | 46.012 | 46.120 | 46.228  |
| TOP LEVEL OF CIM (MC)                  | 44.200 | 44.350 | 44.500  | 44.650 | 44.800 | 44.950 | 45.100 | 45.250  |
| INVERT LEVEL OF CROSS PIPE (MC)        | 44.140 | 44.290 | 44.440  | 44.590 | 44.740 | 44.890 | 45.040 | 45.190  |
| TOP LEVEL OF CIM (FR)                  | 44.140 | 44.290 | 44.440  | 44.590 | 44.740 | 44.890 | 45.040 | 45.190  |
| INVERT LEVEL OF CROSS PIPE (FR)        | 44.140 | 44.290 | 44.440  | 44.590 | 44.740 | 44.890 | 45.040 | 45.190  |
| INVERT LEVEL OF LONGITUDINAL PIPE (SB) |        |        |         |        |        |        |        |         |
| INVERT LEVEL OF LONGITUDINAL PIPE (NB) |        |        |         |        |        |        |        |         |

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 JAPAN INTERNATIONAL COOPERATION AGENCY

**KEI** KATAHIRA & ENGINEERS INTERNATIONAL  
**YEO** YACHIYO ENGINEERING CO., LTD.

REPUBLIC OF THE PHILIPPINES  
 DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

BUREAU OF DESIGN

Submitted By: **DANILO C. TRAJANO** (Project Director)  
 Reviewed By: **JOSEFINA M. ALAGAR** (Chief, Highways Division)  
 Recommended By: **GILBERTO S. REYES** (OC, Director IV)  
 Recommended By: **MANUEL M. BONGAN** (Undersecretary)  
 Approved By: **SIMEON A. DATUMANONG** (Secretary)

PROJECT AND LOCATION:  
 THE DETAILED DESIGN STUDY ON  
 UPGRADING INTER-URBAN HIGHWAY SYSTEM  
 ALONG THE PAN-PHILIPPINE HIGHWAY  
 (Plaridel, Cabanatuan and San Jose Bypasses)

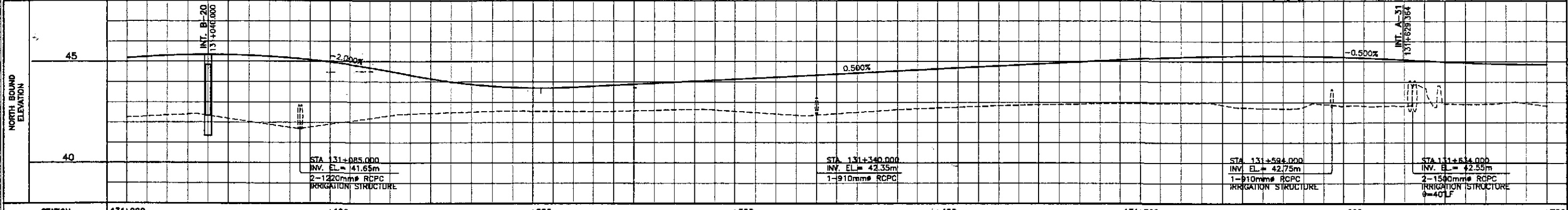
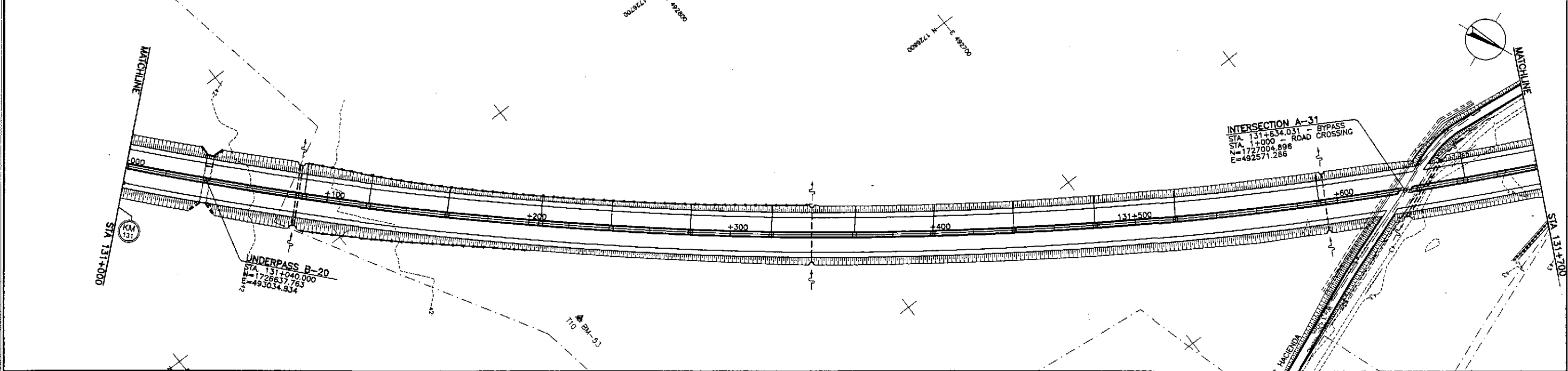
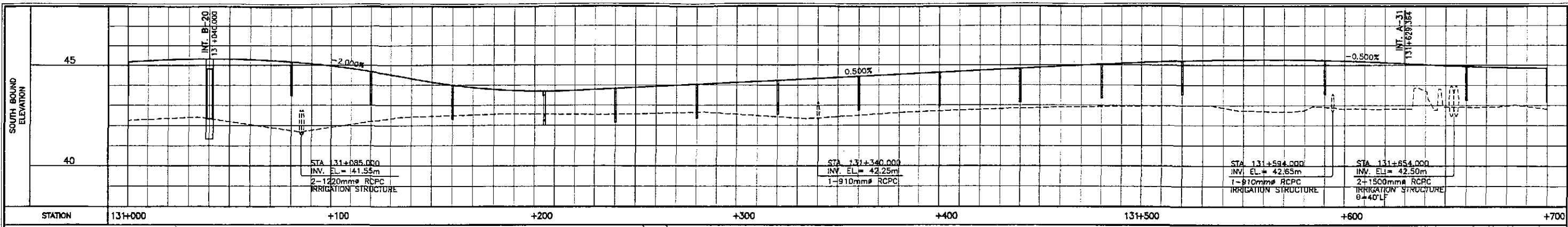
**CABANATUAN BYPASS - CONTRACT PACKAGE IV**

SCALE:  
 HORIZONTAL: 1:1000  
 VERTICAL: 1:100  
 FULL SIZE A1

SHEET CONTENTS:  
**SURFACE DRAINAGE  
 PLAN AND PROFILE**  
 ALONG BYPASS (ULTIMATE STAGE)  
 STA. 130+300 - STA. 131+000

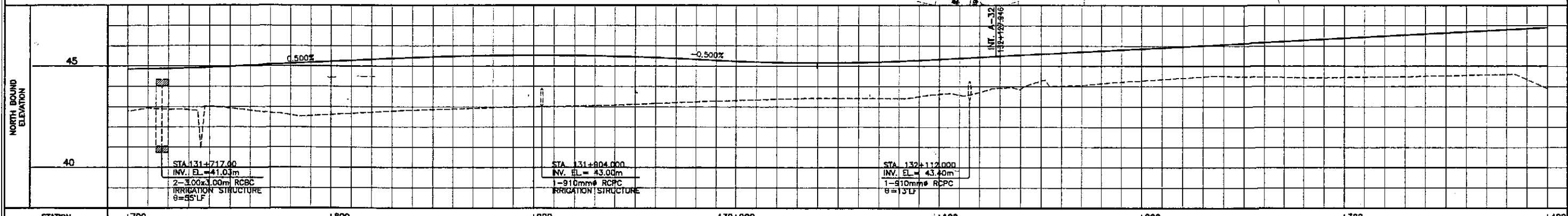
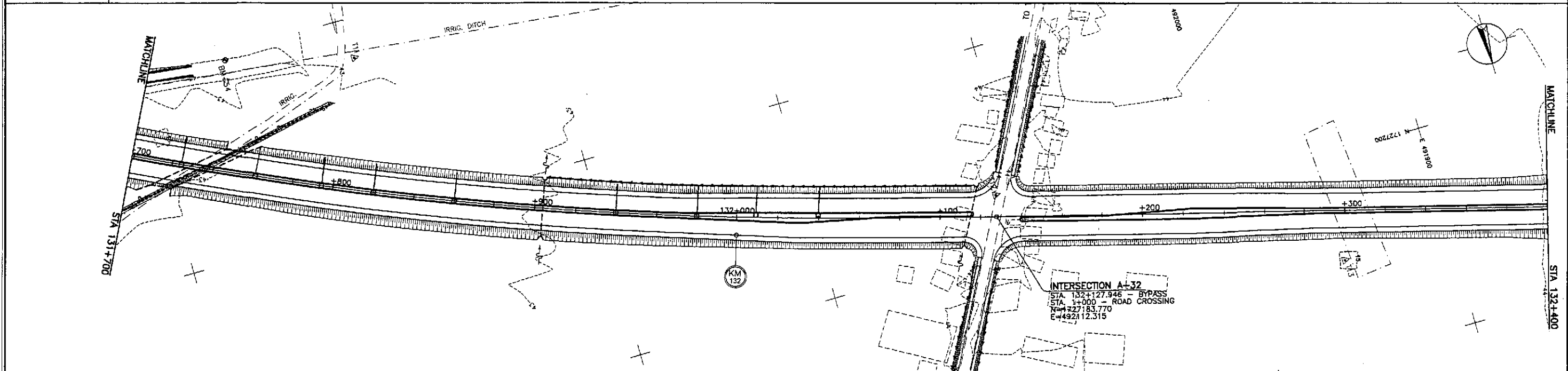
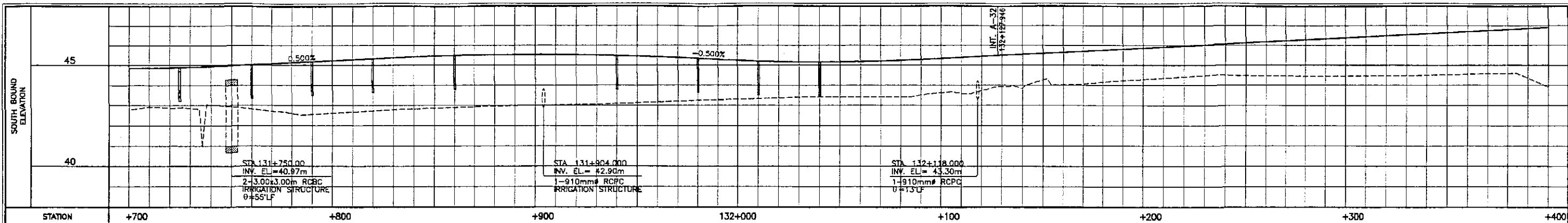
SHEET NO.:  
**DP-05**





| STATION                                | 131+000 | +100   | +200   | +300   | +400   | 131+500 | +600   | +700   |
|--|---------|--------|--------|--------|--------|---------|--------|--------|
| FINISHED GRADE                         | 45.174  | 45.294 | 45.334 | 45.294 | 45.174 | 44.974  | 44.694 | 44.334 |
| TOP LEVEL OF CIM (MC)                  | 43.820  | 43.820 | 43.820 | 43.820 | 43.820 | 43.820  | 43.820 | 43.820 |
| INVERT LEVEL OF CROSS PIPE (MC)        | 43.820  | 43.820 | 43.820 | 43.820 | 43.820 | 43.820  | 43.820 | 43.820 |
| TOP LEVEL OF CIM (FR)                  | 43.780  | 43.780 | 43.780 | 43.780 | 43.780 | 43.780  | 43.780 | 43.780 |
| INVERT LEVEL OF CROSS PIPE (FR)        | 43.780  | 43.780 | 43.780 | 43.780 | 43.780 | 43.780  | 43.780 | 43.780 |
| INVERT LEVEL OF LONGITUDINAL PIPE (SB) | 43.780  | 43.780 | 43.780 | 43.780 | 43.780 | 43.780  | 43.780 | 43.780 |
| INVERT LEVEL OF LONGITUDINAL PIPE (NB) | 43.780  | 43.780 | 43.780 | 43.780 | 43.780 | 43.780  | 43.780 | 43.780 |

|           |          |             |   |  |  |  |                        |  |   |   |              |
|-----------|----------|-------------|---|--|--|--|------------------------|--|---|---|--------------|
|           | DATE     | SIGNATURE * |   |  |  |  | PROJECT AND LOCATION : | SCALE :  | SHEET CONTENTS :  | SHEET NO. :   |              |
|           | DESIGNED | 10/17/02    | [Signature]   | REPUBLIC OF THE PHILIPPINES<br>DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS |  |  |                        | THE DETAILED DESIGN STUDY ON<br>UPGRADING INTER-URBAN HIGHWAY SYSTEM<br>ALONG THE PAN-PHILIPPINE HIGHWAY<br>(Plaridel, Cabanatuan and San Jose Bypasses)<br><b>CABANATUAN BYPASS - CONTRACT PACKAGE IV</b> | HORIZONTAL<br>1:1000<br>VERTICAL<br>1:100<br>FULL SIZE A1 | <b>SURFACE DRAINAGE<br/>         PLAN AND PROFILE</b><br>ALONG BYPASS (ULTIMATE STAGE)<br>STA. 131+000 - STA. 131+700 | <b>DP-06</b> |
|           | CHECKED  | 10/19/02    | [Signature]   | BUREAU OF DESIGN<br>OFFICE OF THE SECRETARY                            |  |  |                        |  |   |   |              |
| SUBMITTED | 10/21/02 | [Signature] | Submitted By: DANILO C. TRAJANO (Project Director)<br>Reviewed By: JOSEFINA M. ALAGAR (Chief, Highway Division)<br>Recommended By: GILBERTO S. REYES (OIC, Director IV)<br>Recommended By: MANUEL M. BONGAON (Undersecretary)<br>Approved By: SIMEDON A. DATUMANONG (Secretary) |  |  |  |                        |  |   |   |              |



| STATION                                | +700   | +800   | +900   | 132+000 | +100   | +200   | +300   | +400   |
|--|--------|--------|--------|---------|--------|--------|--------|--------|
| FINISHED GRADE                         | 44.859 | 44.879 | 44.939 | 45.034  | 45.134 | 45.234 | 45.334 | 45.422 |
| TOP LEVEL OF CIM (MC)                  | 43.506 | 43.540 | 43.680 | 43.830  | 43.980 | 44.130 | 44.280 | 44.422 |
| INVERT LEVEL OF CROSS PIPE (MC)        | 43.506 | 43.540 | 43.680 | 43.830  | 43.980 | 44.130 | 44.280 | 44.422 |
| TOP LEVEL OF CIM (FR)                  | 43.445 | 43.480 | 43.620 | 43.770  | 43.920 | 44.070 | 44.220 | 44.362 |
| INVERT LEVEL OF CROSS PIPE (FR)        | 43.445 | 43.480 | 43.620 | 43.770  | 43.920 | 44.070 | 44.220 | 44.362 |
| INVERT LEVEL OF LONGITUDINAL PIPE (SB) |        |        |        |         |        |        |        |        |
| INVERT LEVEL OF LONGITUDINAL PIPE (NB) |        |        |        |         |        |        |        |        |

|  |           |          |                    |  |   |                                      |                                    |  |                      |  |             |
|--|-----------|----------|--------------------|--|---|--------------------------------------|------------------------------------|--|----------------------|--|-------------|
|  | DESIGNED  | DATE     | SIGNATURE          | REPUBLIC OF THE PHILIPPINES<br>DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS |   |                                      |                                    | PROJECT AND LOCATION :   | SCALE :              | SHEET CONTENTS :   | SHEET NO. : |
|  | CHECKED   | 10/19/02 | <i>[Signature]</i> | BUREAU OF DESIGN   |   |                                      |                                    | THE DETAILED DESIGN STUDY ON<br>UPGRADING INTER-URBAN HIGHWAY SYSTEM<br>ALONG THE PAN-PHILIPPINE HIGHWAY<br>(Plaridel, Cabanatuan and San Jose Bypasses) | HORIZONTAL<br>1:1000 | SURFACE DRAINAGE<br>PLAN AND PROFILE<br>ALONG BYPASS (ULTIMATE STAGE)<br>STA. 131+700 - STA. 132+400 | DP-07       |
|  | SUBMITTED | 10/21/02 | <i>[Signature]</i> | Submitted By:  | Reviewed By:                                  | Recommended By:                      | Approved By:                       | VERTICAL<br>1:100  |                      |  |             |
|  |           |          | TEAM LEADER        | DANILO C. TRAJANO<br>Project Director                                  | JOSEFINA M. ALAGAR<br>Chief, Highway Division | GILBERTO S. REYES<br>DC, Director IV | MANUEL M. BONDAN<br>Undersecretary | SIMEON A. DATUMANONG<br>Secretary  | FULL SIZE A1         |  |             |