

Source Data for Leveling		
STEPS	SOURCE	WEBSITE
Recon Old Marks and Locations for New Marks	Project Planning-Photos/Contracting Opportunites-Leveling-Scope of Work -version 9c-Section F	
	NOAA Manual NOS NGS 1 Geodetic benchmarks; NOS NGS 3 Geodetic Leveling Chapter 2	
Create Project Map(s)	Curt's CD, sample	
Collect GPS RTK Data (or TGO) of Tie Stations; Check Uncorrected Heights	DRAFT	
Submit Project Proposal	NGS Home page	
	http://www.ngs.noaa.gov/PROJECTS/proposals/project1.shtml	
Set New Marks	NGS home page-products and services-Publications Online- or via project proposal	
	http://www.ngs.noaa.gov/PUBS_LIB/GeodeticBMs.pdf	
Write Updates to Existing Descriptions in the Field	http://www.ngs.noaa.gov/PROJECTS/NGSforms/recovery.pdf ; Project Planning-Photos/Contracting Opportunites-Leveling-Scope of Work -version 9c-Section F	
Write Descriptions for New Marks in the Field	http://www.ngs.noaa.gov/PROJECTS/NGSforms/recovery.pdf	
Collect Photos for Each Mark, New and Old	Project Planning-Photos/Contracting Opportunites-Leveling-Scope of Work -version 9c-Section G	
Label Each Photo Properly	http://www.ngs.noaa.gov/PROJECTS/INSTRUCTIONS/photos/Digital_Photo_Requirements.pdf	
Create Detailed Field Project Map(s)	Curt's CD, sample	
Upload Existing Marks into Windesc	NGS home page/download software	
Enter New Descriptions into Windesc	Windesc Help	
Run Windesc for Errors	DRAFT	
Collect Level Data	Geodetic Leveling NOS NGS 3	
	Products and services/publications/field	
	http://www.ngs.noaa.gov/PUBS_LIB/Geodeticleveling_nos_3.pdf	

Source Data for Leveling

STEPS	SOURCE	WEBSITE
Run Translev	NGS home page/download software	
Correct Errors from Translev	TransLev Help	
Re-run Translev so No Errors		
Create a Project Notebook		
Submit Project to NGS		
Collect x Minutes of Static Data for Old and New Points for HT Mod	products and services-publications on -line-vertical	
	DRAFTGuidelinesforEstablishingGPSderivedOrthometricHeights	

DRAFT



Successful Leveling Tips

This document serves as a checklist and a guide to ensure basic things are completed for your project prior to starting.

Preparation (Make Sure All Preparation Work Is Completed Before Field Leveling)

- Schedule 2 Week Time Frame with NGS Advisor to Begin Project Planning and Field Training
- Where Possible Transfer Heights before Mark(s) is(are) Destroyed
- Perform Reconnaissance of Existing Marks, Locations for New Marks and Tie Marks (include more than the minimum incase the minimum number do not check)
- Use GPS (RTK or TGO) To Check Tie Mark Elevation Differences
- Set New Marks
- Produce an Overview Project Map and a More Detailed One to Assist Leveling Crew
- Submit Project Proposal to NGS via Internet
- Collect And Properly Label Photos
- Update Existing Mark Descriptions in WinDesc
- Write All New Descriptions in WinDesc
- Check Descriptions for Errors in WinDesc

Field Leveling

- Ensure Safety – This is your number 1 priority at all times
- Ensure Crew is Trained
- Place Visible Mark on Rod to Indicate 0.5 m
- Have Logical Approach to Walk Already Reconned. When you begin the leveling your crew should know exactly the path they will follow and you have already planned for any obstacles.
- Check Rods' and Instrument's Circular Levels once a Week to Ensure they're in Adjustment
- Run C-Check Daily; Verify Within Tolerance; Apply to Day's Leveling by running abstract.
- Never Setup on Asphalt
- Maintain Tight Setup Imbalances (Less Than 2 m). Check cumulative balances as well.
- Do Not Let Thermisters or Level Get Wet
- Do Not Leave the Instrument Setup Unattended
- Don't Point the Instrument into the Sun
- Don't Read Below .5 Meters on Rod
- Ensure Upper Stadia Crosshair is Not Above Invar when Reading Near the Top of the Rod
- Orchestrate Setups so Instrument is Not Pointing into Low Sun Angle
- Do Not Drop Rods!!

12/8/2008

Name

Signature

Date

- Do Not Leave Rods Unattended
- Keep Rod Faces Clean – Do Not Touch Invar
- Always Protect Base of Rod – Do not let base of rod touch the Ground
- Keep One Hand On Rod at All Times
- Rod Person Calls Out BM Stamping for Designation Check
- Backsight Rod Person Does Not Move until Foresight has been Recorded and Observer Directs
- Keep moving – Time creates settlement of your rods and instrument leading to errors
- Stay focused on the job. Both rod men and observer always look ahead to the next setup or two and plan your next rod/instrument location.
- Start and End with the Same Rod on Mark
- Spacer Must Have a Backsight and a Foresight on each section; Make a Note in Field Log Indicating where Spacer was Placed
- Do Not Forget to Retrieve Spacer after Setup
- Plan Reverse Leveling During a Different Time of Day from the First Level Run
- Double Run **All** Sections
- If More Than 14 Day Gap Since Last Leveling Re-Do Ties to Previous Sections
- Do not use cell phones especially during observations

Processing Level Data (Must be Done Daily)

- Process Level Data Each Day. Create *.lvl, *.hgz, *abs and check all for errors.
- Do Not Wait Until all Leveling is Complete to do Processing
- Analyze New Minus Old with P-file (can be obtained via advisor)
- Analyze Section Differences and $-(F+B)$ Accumulated Differences
- Check Section Closures and Loop Closures

12/8/2008

Name

Signature

Date